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BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 4 1944

INFECTIVE HEPATITIS IN THE GARRISON OF MALTA*

BY

K. DAMODARAN, M.B., B.S., M.R.C.S., L.R.C.P.

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AND

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Lieut.-Col., R.A.M.C.

This paper is based on the clinical observation of 450 cases admitted to a general hospital during 1941, 1942, and early part of 1943. The siege conditions prevailing in Malta at the time facilitated this investigation.

Epidemiological Consideration.—The epidemic is practically confined to autumn and early winter, but sporadic cases are seen throughout the year. Over 65% of the cases occur in the peak months of October, November, and December, about 86% falling in the age group 20–29. Men over the age of 40 appear to be less susceptible to the disease. The majority of cases occur in the fourth week after exposure to infection, but there is considerable variation in the incubation period. Infectivity seems to be confined to the pre-icteric stage. There is a tendency for the cases to appear in series at intervals of about four weeks. The probable explanation is that the disease is infectious only for a short time, and the cases occur in series at intervals corresponding to the incubation period. It is probably airborne through infectious droplets, and overcrowding in barracks and quarters tends to its spread. About 6% of the cases occurred in the R.A.M.C., including medical orderlies of other units. This is a high figure considering the proportion of R.A.M.C. to the whole Army.

Clinical Types

Infective hepatitis may be described under four clinical types according to the mode of onset, signs and symptoms, and course of the disease: (i) gastro-intestinal; (ii) febrile; (iii) icteric; and (iv) the group without jaundice (hepatitis sine icterus).

(i) *Gastro-intestinal Type (52%).*—The onset is insidious. This type starts with malaise, nausea, anorexia, vomiting, constipation, or (rarely) mild diarrhoea. Epigastric pain or a feeling of discomfort or distension is present in most cases. After the lapse of three to five days the urine turns dark. Within an interval of 24 to 48 hours an icteric tinge appears in the conjunctivae. Frontal headache, retro-orbital pain, generalized muscular pain, pain in the loin, vague pain in the joints, and a feeling of chill and faintness have been noticed at the onset. Injection of conjunctival vessels, giving the appearance of radiating streaks from the corneal margin, was observed in a number of cases. Flushing of the face and a faint generalized erythematous rash were seen in a few very early cases. The signs, symptoms, and course of the disease in this type closely resemble the so-called catarrhal jaundice of civil life.

(ii) *Febrile Type (30%).*—All patients with marked pyrexia at the onset (100° F. or higher) are included in this group. The temperature may rise to 105° F. The onset is more rapid than in the previous type. Usually the patient notices a sensation of cold or chill, not amounting to a rigor, accompanied by frontal headache, retro-orbital pain, and sometimes generalized muscular pain. Rarely it begins with a rigor. Injection of conjunctival vessels and mild erythematous rash have been noted in some cases of this type too. The temperature after three or four days usually drops by rapid lysis. Within a day or two after lysis bile appears in the urine, and 24 to 48 hours later there is an icteric tinge in the conjunctivae. Relative bradycardia is a noteworthy sign. Some typical cases were very closely observed, and four-hourly pulse and temperature charts were maintained. The charts revealed Faget's sign in a number of cases. Symptoms usually subside soon after the onset of jaundice. The subsequent course of the disease is similar to that of the previous type. Post-influenzal jaundice has been recorded, especially towards the end of the last war. It is extremely doubtful whether influenza is responsible for jaundice at all. The fever resembles influenza very closely, but by tracing the source of infection we have been able to establish the fact that the febrile type may be the source of infection to a case of the gastro-intestinal type, and vice versa. Besides, in barracks and billets both types occur side by side.

(iii) *The Icteric (Ambulatory) Type (10%).*—No definite prodromal symptoms are observed in this group. Occasionally there may be a feeling of general malaise for two or three days. These patients report sick only if the icteric tinge of conjunctivae is pointed out to them by some other person or is noticed in the looking-glass by themselves. Teetotallers, patients over the age of 35, and Maltese usually belong to this group. The great majority feel quite well subjectively. Jaundice is not deep. Bradycardia is as frequent as in the other types.

(iv) *The Group without Jaundice (Hepatitis sine Icterus).*—We came to know about the existence of this group under the following circumstances: Eight officers were staying together in a billet. In the last week of Oct., 1941, one of them developed jaundice and was admitted to hospital. About five weeks later four others developed the same symptoms—fever, headache, nausea, and slight epigastric pain—and were also removed to hospital, where three of them developed jaundice, but the fourth did not, though he had the same symptoms at the onset. On admission his liver was enlarged and tender. White cells, 5,200—polymorphs 44.5%, eosinophils *nil*, basophils 1.5%, lymphocytes 51.5%, monocytes 2.5%. Van den Bergh—direct and indirect, negative. The onset in this group is similar to that of the first two groups. One feature is the definite enlargement of the liver (often two fingerbreadths or more below the costal margin). The spleen may or may not be palpable. Relative lymphocytosis is more pronounced. The temperature settles down in less than a week; the liver returns to the normal size in a fortnight. Urine is normal throughout. Sometimes a trace of bile may be seen for a few hours only.

* Abridged specially for the *B.M.J.*

The main signs and symptoms are as follows:

Symptoms and Signs	Frequency %	Remarks
Anorexia, nausea, and general malaise	90	Usually appear at onset. Very mild in icteric type
Vomiting	46	Most marked in gastro-intestinal type. Not present in icteric type
Headache, retro-orbital pain, vague pain all over body	21	More severe in febrile type
Pruritus	10	May occur just before, during, or after appearance of jaundice
Fainting	2	At the onset
Bradycardia	75	Lowest pulse rate recorded 34. In febrile cases there is always a relative bradycardia
Icterus	All except group without jaundice	First appears in conjunctiva a day or two after urine turns dark; then spreads to trunk and limbs. Disappears in same order
Haemorrhagic signs:	Rare	The case with haematuria had *B. coli* infection of urinary tract complicating infective hepatitis
Epistaxis	One case	
Ecchymosis	" "	
Petechiae	" "	
Haematuria	" "	
Herpes labialis ..	3	In one case herpes appeared on forehead
Erythematous rash ..	5	Very faint generalized macular rash all over trunk. Face escapes. Seen only in very early cases. Easily missed
Flushing of face ..	4	Seen only in very early cases
Conjunctival congestion	10	Blood vessels dilated to show red radial striation. Some of these cases complained of photophobia
Urine		Mild amber to deep dark; acid. Bile pigments plus. Bile salts present only in about 3%. Bile free in about 12 days. Extremes: few hours and three months
Bowels:		
Constipated at onset	51	Stools usually light in colour, but may vary from almost normal to definite clay colour. Stercobilin present even in palest stools
Diarrhoea	9	
Loose bowels ..	12	
Normal	28	
Liver:		
Lower edge below rt. costal margin	15	Area of hepatic dullness increased in many patients when examined early enough, but soon shrinks after onset of jaundice. When hepatomegaly marked, jaundice usually mild. Gall-bladder not palpable
Enlargement of spleen	15	Splenomegaly may exist independently of hepatomegaly
Distension of rt. lateral thoracic vein ..	15	This vein becomes distended in some cases late in the disease. The flow is upwards. Liver dullness diminishes at same time. It is probably a sequel to intrahepatic obstruction to blood flow
B.S.R. (Westergren) (studied in 25 cases)		Within normal limits in uncomplicated cases. Slightly raised during pyrexial period and also if there is any lung complication
Leucocyte count (taken in 50 cases)		Slight leucopenia in most cases at onset of jaundice. Total W.B.C. may be as low as 2,550. Relative or absolute lymphocytosis usual. Leucopenia may be followed by slight leucocytosis
Van den Bergh test (qualitative) (made in 25 cases)		Direct reaction is either prompt positive or biphasic; becomes negative soon after urine is bile-free. Indirect reaction is positive a little longer
Van den Bergh (quantitative) (done n 10 cases)		Bilirubin content varied from 0·4 to 28 mg./100 c.cm., according to intensity of jaundice

Prothrombin Content of Blood.—Estimation of prothrombin content of blood was carried out in a group of 18 patients and two controls by one of us (S. J. H.). Quick's method of estimation as modified by Kark and Lozner was employed, using the stable thromboplastin preparation described by Souter and Kark. In seven of these patients, in whom a low prothrombin level was found, the estimation was repeated in four weeks to ascertain the progress of the case. The prothrombin percentage varied from 35 to 100, depending upon the severity of the case. There was considerable improvement after an interval of four weeks, but in severe cases the prothrombin level was still low (about 60%). Assuming that the liver was the source of prothrombin, it was seen that the liver function was deranged, at least so far as it affected the manufacture and storage of prothrombin.

Complications

Acute Hepatic Necrosis (Icterus Gravis).—This is the most serious and fatal complication, and its possibility renders the disease potentially dangerous. Fortunately this complication is exceedingly rare. We have come across only one fatal case out of 450. A few days after the onset of jaundice, mental irritability, vomiting, and stupor occur. Cheyne-Stokes breathing, coma, and pyrexia supervene, and the patient usually dies in three days. Haemorrhagic manifestations such as haematemesis, epistaxis, or haematuria may occur. Urine contains bile, albumin, and casts. Either suppression of urine or incontinence may occur. A marked diminution in liver dullness can be made out on percussion, and the right lateral thoracic vein may be very much distended. The clinical picture is that of cholaemia (icterus gravis), and the necropsy findings are those of acute necrosis of liver.

Subacute Hepatic Necrosis.—This is a more frequent but less fatal complication. It is met with in all grades of severity. At the onset there is nothing to distinguish it from an ordinary case of jaundice, but gradually jaundice becomes deeper. Liver is tender and slightly enlarged in the beginning, but shrinks later. Nausea, vomiting, and constipation are more pronounced than in an average case of jaundice. The stay in hospital and convalescence are prolonged, but these cases have a fair chance of ultimate recovery.

Other complications are not worth mentioning here.

Second Attacks of Jaundice; Relapse

Apart from icterus neonatorum and relapse due to alcohol, second attacks of jaundice occurred in two cases—two years and five years after the first attack, respectively. In both cases the second attack was milder than the previous one.

Relapse.—True relapse, though rare, is occasionally met with. It appears to be favoured with too early convalescence or too early discharge from hospital. Bile reappears in the urine. The patient may develop a mild pyrexia and feel sick. The icteric tinge of skin and conjunctivae deepens and stools turn pale. The signs and symptoms clear up quicker during this type of relapse than during the original attack.

Relapse due to Alcohol.—The following case first made us realize the part played by alcohol in bringing about relapse of jaundice.

A corporal aged 25 was first admitted on Sept. 8, 1941, with jaundice of moderate intensity. There was tenderness in the hepatic area, but liver and spleen were not palpable. Urine bile-free on Sept. 16. Jaundice had cleared up well on discharge to unit on Sept. 26. Took 5 or 6 bottles of beer a day since the beginning of Nov., 1941. Took 18 bottles of beer on Nov. 19, 1941. Felt pain in the hepatic area on the 22nd. Vomited once in the night. Next day jaundice obvious. Readmitted on Nov. 24 with jaundice of moderate intensity. Lower edge of liver just palpable and tender. Urine contained both bile salts and pigments. Bile-free on Nov. 30.

We have come across eight more similar cases of relapse due to alcohol. The amount of alcohol taken in each case is quite considerable, and is the maximum consumed on any single day since leaving hospital. Beer, whisky, gin, sherry, champagne, all appear to be capable of bringing about relapse. Urine turns dark within 24 to 48 hours after taking alcohol in such cases, and jaundice is quite obvious in 3 or 4 days. The following case illustrates the facts mentioned above.

An officer had his first attack of jaundice two months previously. Took 10 oz. of sherry, 10 oz. of champagne, and 4 oz. of liqueur one day. Within two days developed jaundice again. Urine bile plus; hepatic tenderness plus; liver not palpable: spleen palpable. Total W.B.C., 2,550. Blood bilirubin, 20 mg./100 c.cm. Prothrombin content of blood, 40%; a month later increased to 60%. Urine bile-free a month after onset. Ever since, similar attack of jaundice occurred within 24 hours of taking any alcohol. Finally boarded out to U.K.

Alcohol sometimes produces a hepatitis without jaundice:

An officer attended a party four weeks after hospital treatment for infective hepatitis. Took 12 oz. of whisky. Within about 12 hours developed a mild rigor. Temperature 102° F.; liver enlarged 1 in. below costal margin; urine N.A.D. Temperature normal next morning. Liver appeared normal five days later.

Effect of Liver Poisons on Infective Hepatitis

1. *Alcohol.*—The effect of alcohol on infective hepatitis was studied in over 300 cases. Relapse due to alcohol has been discussed above. Apart from relapse, alcohol appears to precipitate jaundice in persons who are incubating the disease. If an appreciable amount is taken any time between three and six weeks after infection jaundice is very likely to be precipitated within from a few hours to three days. We have about 100 cases to illustrate this fact. The following is a typical example.

A sapper aged 22 had been in contact with a case of jaundice five weeks previously. Did not take any alcohol for three months previous to Oct. 17, 1942. That night he took two cocktails, two bottles of stout, and three glasses of imbeet (crude Maltese wine—alcoholic content 15%). Next day he had a good amount of rum and imbeet. Noticed dark urine within 48 hours. Deep jaundice on admission to hospital on Oct. 23.

The intensity of jaundice increases if alcohol is taken during the course of the disease.

Two oz. of brandy, 3 oz. of gin, 3 oz. of whisky, 10 oz. of imbeet, and three bottles of beer appear to have a more or less equal precipitating effect on jaundice. In all probability the factor responsible for the toxic action on the liver is the alcoholic content of the liquor and not any flavouring agent in it. A bottle of beer or an

equivalent quantity of wine or spirit does not seem to have any effect. It is also doubtful whether two bottles of beer would precipitate jaundice. But if in addition to two bottles of beer some other alcoholic beverage is taken within 24 hours there is a possibility of some effect on the intensity and onset of jaundice. In several instances jaundice has become manifest 24 to 72 hours after taking three bottles of beer. A fortnight's ration of three bottles of beer is usually issued on a single day. Men usually empty the three bottles at the same time, and two or three days later develop jaundice. Alcohol of all kinds was severely restricted in Malta during the latter part of 1942. There was an appreciable fall in the incidence of jaundice, especially among officers, during that period as compared with the previous year.

2. *Arsenic.*—There has been no general agreement as to the causation of jaundice occurring during and subsequent to the treatment of syphilis by arsphenamine preparations. Though syphilis itself can cause jaundice, the fact that the latter often occurs after the serum reactions have been rendered negative proves that syphilis has very little to do with it. The incidence of jaundice due to arsphenamine therapy has increased in recent years *pari passu* with "catarrhal jaundice" in the areas affected. A seasonal prevalence has also been noticed. The signs and symptoms closely resemble those of catarrhal jaundice or infective hepatitis. There is considerable evidence to support the view that the majority of cases of jaundice met with during and subsequent to arsphenamine therapy are not due solely to arsenic, though that drug is a strong contributory factor. The incidence of jaundice is less in American clinics, where arsphenamine is administered by continuous I.V. drip or by frequent I.V. injections during a short period of intensive treatment varying from 1 to 5 days. We have come across 14 cases of jaundice in syphilitic patients. The majority occurred during the season when infective hepatitis was prevalent. All were sero-negative when jaundice was manifested. There was no definite relation between the total amount of arsenic given and the onset of jaundice. Jaundice occurred in the beginning, middle, or towards the end of a course of injections or, in some cases, even long after the last injection. If an injection was given after the urine turned dark jaundice was precipitated within 48 hours. In such cases the jaundice was deep and the course of the disease prolonged. Jaundice which occurred a considerable interval after a course of injections was very mild when compared with that occurring during the course of injections. In all these respects the effect of arsenic is similar to that of alcohol, already discussed, but is more pronounced. Nine out of 14 cases arose in naval personnel. Two main reasons for this preponderance seem to be the daily issue of the rum ration and the I.V. administration of arsenic.

3. *Gold.*—In reviewing 900 cases of arthritis (rheumatoid) treated with gold at an arthritis clinic in Leeds one of us (S. J. H.) noticed a high incidence of jaundice after gold treatment. Among the first 100 cases (1935) there was no jaundice. In the second series, of 300 cases (1936), 3.5% developed jaundice, and in the third series (900 cases) 9.4%. The clinical picture was indistinguishable from the classical catarrhal jaundice. The van den Bergh test gave biphasic reactions, and in severe cases a transient positive direct reaction. There was a sparse outbreak of infective hepatitis (sporadic) for about eighteen months during 1936 and 1937 in the area from which most of the cases came. The proportion of cases of toxic jaundice among patients on gold treatment was much greater than could be accounted for by chance infection. Presumably the cause of jaundice was the temporary toxic effect of the gold salts on the liver cells, inducing a hepatitis which in some cases progressed to subacute necrosis. Gold is therefore brought into line with arsenic in producing similar toxic effects upon the liver. All evidence favours the view that gold was not entirely responsible for the jaundice, but was only accentuating the effect of the attack of ordinary infective hepatitis.

Discussion

The clinical findings, already discussed, indicate that the jaundice is, at least partly, obstructive in nature. The gall-bladder was not palpable in any of our cases. Our post-mortem cases showed no evidence of obstruction in the bile ducts, cystic duct, and bile canaliculi, but there was diffuse hepatitis with necrosis. The obstruction lies in the liver parenchyma, resulting from the swelling and compression of liver cells consequent upon direct damage to them.

Relationship with Catarrhal Jaundice.—Virchow, in 1864, first put forward the view that catarrhal jaundice was due to catarrhal swelling of the opening of the common bile duct the result of an acute gastro-intestinal disturbance. Later it was believed that the inflammation extended into the smaller ducts. Eppinger described obstruction of the ostium of the common bile duct by a mucous plug in his much-quoted post-mortem report of a jaundice patient who died by accident. Later, however, after following up his cases for over 18 years, he supported the view "that acute catarrhal jaundice is merely acute yellow atrophy in miniature." Schrumpf, in 1932, secured a piece of liver removed on the eighth day at an operation undertaken for a mistaken diagnosis, and described the changes as those of "acute yellow atrophy in miniature." Gaskell, in 1933, described a case of jaundice which ended fatally at an earlier stage (third day) from another cause, and the condition found in the liver was an acute inflammation with degeneration of the liver cells. The bile ducts were intact with normal epithelium, and appeared to be in no way involved in the inflammatory process. A. M. Gilchrist recently published pathological reports upon material removed at operation from the liver of two patients with jaundice who were operated on because of "mistaken diagnosis." The finding in both was a subacute hepatitis with swelling and albuminous degeneration of the liver cells, accompanied with necrosis of a few liver cells in the centre of the lobules. Findley, in 1941, reviewing catarrhal jaundice, quoted post-mortem records of eight published cases in which were found degenerative changes in the liver cells and round-cell infiltration in the portal tracts with no change in the bile ducts or duodenum.

Clinically, it is impossible to separate catarrhal jaundice from infective hepatitis—especially the gastro-intestinal and icteric forms: the symptoms and signs of the two conditions are identical. There is usually leucopenia, the total W.B.C. reaching a figure as low as 2,000. There is a relative lymphocytosis, and primitive forms sometimes occur. The monocytes are increased. It also sometimes occurs in sporadic outbreaks. In fact, there is nothing to distinguish widespread catarrhal jaundice from infective hepatitis. It breaks out in epidemic form when conditions are favourable for its spread. During the epidemic in Malta the few cases admitted to the civil hospitals were diagnosed and treated as ordinary catarrhal jaundice. In the light of these facts the theory of catarrhal pathogenesis of jaundice is not tenable.

Aetiology

The long incubation period, the seasonal prevalence, the appreciable immunity after the first attack, and the high infectivity during the pre-icteric stage favour the view that it is a virus disease. We know very little about the nature and paths of entry of the virus. The prodromal malaise, the occasional generalized rash, and the early splenomegaly rather suggest a generalized blood-borne infection. The mode of infection is probably droplet, after brief exposures as in "speech contact," with a possibility of transmission by fomites. Since the period of infectivity is very limited, conditions in civil life are less favourable for its spread. Overcrowding in barracks and billets is an important factor for its epidemicity in the Army.

Alcohol is another contributory factor. It seems that two hepatotoxic factors—virus plus gold, virus plus N.A.B.—increase the liability of the patient to develop hepatitis. We have no doubt that the same explanation holds in relation to virus and alcohol. During the incubation period alcohol is capable of precipitating jaundice, and after the onset of jaundice it is capable of intensifying it. It is quite probable that alcohol precipitates jaundice in the group of hepatitis without jaundice. In civil life it is impossible to identify this group. Teetotallers appear to be less susceptible to jaundice. During the last war Indians serving in the Middle East were found to be much less susceptible to infective hepatitis. The mortality due to jaundice among the Indian force was less than half that among the other forces. During the present war the number of infective hepatitis cases treated in Indian hospitals in the Middle East is negligible when compared with that treated in British hospitals. The vast majority of Indians are teetotallers. The Mauritians serving in the Middle East are more susceptible to infective hepatitis, though the majority of them are descendants of Indians originally settled in Mauritius. The Mauritians are addicted to alcohol as much as anybody else.

Prophylaxis

Under war conditions the temptation to indulge in alcohol is great, and it is difficult to avoid overcrowding. But the disease is most prevalent in September to January, and restrictions are needed only during these months. A possibly useful preventive measure would be the reduction of consumption of alcohol to one bottle, or perhaps two bottles, of beer or an

equivalent amount of other alcoholic beverage for periods of three days during these months. Measures should also be taken to prevent overcrowding, so far as is possible, from the middle of August to the end of December.

One might ask how soon after discharge from hospital can a patient take alcohol or resume arsenic or gold therapy? We have come across cases in which a considerable amount of alcohol was taken a few weeks after discharge without any untoward effect. We know at least one patient who received a complete course of arsenic injections after an interval of only five weeks from the date of discharge without any toxic manifestation. It should be remembered that the normal liver can withstand large doses of all these drugs. The capacity of a damaged liver depends upon the amount of damage already done. Recovery is complete in a short time in mild cases, whereas in severe cases it may be months before the liver is capable of withstanding even small doses of these drugs. In a case of moderate severity a period of six months is a reasonable interval, after which the administration of these drugs can be resumed with safety. Great caution and longer intervals are needed in relapse cases. Evidence is accumulating to support the view that a weak liver poison such as alcohol may have a stimulant action on the fibrous tissue stroma of the liver while exerting a degenerative effect on the liver parenchyma, and the prolonged stimulant action may lead to cirrhosis in course of time. In all probability these properties of the drug hold good only if the liver is already damaged by a previous attack of hepatitis, with or without jaundice. If the stroma is as much damaged as the parenchyma, stimulation can produce no proliferation, and cirrhosis is unlikely in cases of moderate or severe jaundice except as replacement fibrosis in multiple nodular hyperplasia. This is rather speculative, but it is hoped that future work will confirm it.

Summary

A review is given of 450 cases of infective hepatitis treated in a general hospital in Malta. The epidemiology, clinical types, signs, symptoms, diagnosis, complications, and cause of relapse are discussed. The effect of liver poisons—alcohol, arsenic, and gold—is described. The pathogenesis of catarrhal jaundice is reviewed critically.

The clinical findings suggest that the jaundice is partly obstructive in nature.

We wish to express our gratitude to Col. Morrison and Col. Whalley for permission to carry on this investigation and publish this paper. Our thanks are also due to Lieut.-Col. McPherson, Major Kidson, Major Wilson, Major Shucksmith, Major Light, Capt. Oakes, Sister Bevan, and Sister Nicholson.

HUMAN-MILK INTOXICATION DUE TO B_1 AVITAMINOSIS

BY

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For the first few months after the birth of their infants the Chinese women in Hong Kong live in constant dread of losing them. This anxiety is comprehensible, taking into consideration the infantile mortality, which amounted to 345 per 1,000 live births in 1939 (Hong Kong Annual Medical Report)—i.e., more than one-third of all infants born alive died within their first year of life. A certain proportion of deaths occur suddenly in apparently healthy, well-fed, and well-cared-for babies, with a predilection for the male sex, thus giving rise to a belief among the Chinese that evil spirits, out of jealousy, snatch their infants, especially plump baby boys. Hence the rather pathetic efforts of the parents to protect their infants from such a fate: "joss" papers are pasted on the windows and "joss" sticks are burned before the entrance of their homes to prevent the incursion of evil spirits; the infants are disguised as animals by sewing fur ears on their caps; protective talismans are hung on their necks and chains on their ankles to fetter them, allegorically, to their homes. However, in spite of all these "precautions," a mother may find, to her horror, that her infant has died, unobserved, during the night or while strapped to her back (the usual method of carrying infants in China). Sometimes the mothers observe that their infants suddenly become cyanotic and dyspnoeic and die, apparently of suffocation. In such cases women believe that suffocation is due to "wind" which drives mucus into the child's throat. Furthermore, they believe that this "wind" is transmitted to the infants through their own milk, which is considered to be "no good."

Aetiology

Actually the belief that their milk is not good has been scientifically proved. In 1888 Hirota, in Tokyo, was the first to observe a complex of symptoms in infants fed by beriberic women, and he called this complex "infantile beriberi"—thus connecting this disease with a condition later found to be B_1 avitaminosis. Since then a number of Japanese workers (Ito, 1911; Asakura, 1932; Takamatsu, 1934), and also I myself (Fehily, 1940), have suggested that the milk of B_1-avitaminotic women, besides being vitamin-deficient, contains some toxic substance or substances. We now know that in B_1 avitaminosis, owing to a reduction of certain co-enzymes, the intermediary products of incomplete carbohydrate oxidation accumulate in the tissues, organs, and body fluids, including human milk. These intermediary metabolites are believed to consist of lactic acid, aceto-acetic acid, glycuronic acid, glyceraldehyde, acetaldehyde, dihydroxy-acetone, methylglyoxal, and others. Most of these intermediary metabolites (lactic acid excluded) are estimated as "bisulphite binding substances" (B.B.S.), which are found to be increased threefold to fourfold over normal values in all body fluids in B_1-avitaminotic living beings. After the administration of vitamin B_1 the B.B.S. decrease almost immediately to the normal values. Although the correlation between the intermediary metabolites and B_1 avitaminosis has been definitely established, many workers (Haynes and Weiss, 1940, and others) have proved that these metabolites are not the causative factor in the development of the acute nervous and cardiac symptoms encountered in this condition.

One of these substances—methylglyoxal—has been shown to be actively toxic (Kermak, Lambie, and Slatter, 1927; Vogt-Moller, 1931), and as it is never found in the milk of healthy women it has been suggested that this product is the toxic factor in the milk of B_1-avitaminotic women. However, various authors have stated (not in connexion with infantile beriberi) that other intermediary products, if in excess, are toxic, and this seems to have been demonstrated by many experiments, including the following (Haynes and Weiss, 1940):

> The administration of large doses of pyruvic acid or sodium pyruvate to normal and deficient rats was followed by death of the rats, both normal and deficient. Pyruvic acid in sublethal doses was especially irritating to the throat and had an injurious effect on the digestive and respiratory systems, whereas sodium pyruvate in sublethal doses produced diarrhoea. In the case of B_1-avitaminotic rats, the lethal dose of sodium pyruvate is smaller than that for normal rats, and the animals developed neurological symptoms shortly before death.

It would seem that the amount of pyruvic acid and sodium pyruvate in the milk of B_1-avitaminotic women is beyond the infantile tolerance, as one encounters all the above-mentioned symptoms as well as similar modes of death in infants fed on such a milk. It would seem also that besides methylglyoxal and pyruvates, other intermediary metabolites, in the amounts encountered in the milk, may take part in the intoxication, and their action would appear to be synergic and also cumulative, as even a few feeds may be fatal to an infant. This action is especially evident in acute cases, in which the intermediary metabolites may possibly give rise to acidosis similar to that of diabetic coma—an acute intoxication caused by the products of disordered carbohydrate and fat metabolism. In addition, it seems that the accumulation of intermediary metabolites alters the taste of the milk, as obviously hungry infants, after sucking greedily for a few moments, avert their heads protestingly and spill the milk (while water or cow's milk is taken without trouble).

Thus infantile beriberi differs considerably from the adult type, being primarily and mainly an intoxication, with acute

symptoms, short duration, and bad prognosis. Consequently the term "infantile beriberi" would seem to be misleading, and this may account for the non-recognition of the disease in some countries until comparatively recently. A more suitable term is therefore desirable; in 1911 Ito suggested that the disease be called "breast-milk intoxication," and recently I (Fehily, 1943) suggested the term "human-milk intoxication."

Symptoms

Although infants fed on the milk of B_1-avitaminotic women may present a characteristic habitus or acquire some persistent symptoms, the disease generally manifests itself in the form of attacks which develop shortly after breast-feeding. These attacks are characterized either by vomiting, abdominal pain (accompanied either by crying or by screaming), diarrhoea, and abdominal distension, or by vomiting, stiffness of the neck and extremities, and convulsions. In the most acute form the attack consists of dyspnoea, cyanosis, and running pulse. The attacks often end fatally, but in case of survival the infants pass into the chronic stage with symptoms of oedema, oliguria, aphonia, constipation, meteorism, neck retraction, enlargement of liver and right side of the heart, loss of weight, retarded growth, and marasmus. At the beginning of the intoxication the infants sometimes present a characteristic habitus: they are fat and flabby, pale and restless, and often have cough, which in some cases may be due to irritation by intermediary metabolites. The condition of the reflexes is variable, being normal, exaggerated, diminished, or absent. The temperature in uncomplicated cases is normal or subnormal. Probably as a result of the irritation and of the oedematous condition of the respiratory tract, intercurrent diseases, such as bronchitis and bronchopneumonia, are present in the majority of cases, and these complications contribute greatly to the extremely high mortality, which amounts in untreated cases to approximately 95%. Before the main cause of this high infantile mortality was recognized, in infant welfare centres in Hong Kong cod-liver oil, iron, and calcium mixtures were administered prophylactically as a routine, but without any noticeable effect on infantile morbidity or mortality.

The acuteness of milk intoxication is dependent on the amount of milk ingested; consequently overfed babies are more liable to acute attacks and to sudden death. These attacks, as well as other symptoms of the disease, disappear on the cessation of breast-feeding and its substitution even by foods such as diluted sweetened condensed milk or rice paste, which are deficient in vitamin B_1 and consist mainly of carbohydrates. With the resumption of breast-feeding the attacks reappear and eventually lead to death, unless the secretion of the mother's milk ceases or considerably diminishes. It would seem that infants born alive possess a reserve, however small, of vitamin B_1 and may progress satisfactorily until the accumulated intermediary products of carbohydrate metabolism are ingested in the milk of vitamin-B_1-deficient women. Thereafter the infants try to get rid of these intermediary metabolites by excretion through the kidneys (methylglyoxal can be found in the urine) and the lungs (the pungent smell of the breath often noted is probably due to pyruvic acid); but mainly by further oxidation of the metabolites to harmless end-products, provided sufficient vitamin B_1 is available. Consequently infants succumb to intoxication when their vitamin reserves become depleted. In infants born with a low vitamin reserve or those fed previously on vitamin-B_1-deficient food the intoxication is greatly accelerated. I observed the symptoms of acute milk intoxication in a 5-months-old poorly nourished infant, whose mother admitted, on close questioning, that until a week previously the child had been fed on sweetened condensed milk, she being a professional wet-nurse. (Incidentally during these five months she nursed two infants, both of whom succumbed to a disease similar to that of her own child.)

During the year 1939, of the infants brought to an infant welfare centre in Hong Kong, 18% showed manifest signs of milk intoxication; while 25% of the mothers complained of one or more of the following symptoms: weakness, numbness or oedema of the extremities, dyspnoea, palpitation, or meteorism (this latter condition often being an early sign of B_1 avitaminosis). The maternal beriberi and the milk intoxication in infants did not always correspond, owing to the fact that most of the women with manifest B_1 avitaminosis ceased to lactate, while those with good lactation were still in a latent stage.

Findings at Necropsy

In post-mortem examinations the most striking feature of human-milk intoxication (in uncomplicated cases) is the absence of any, or any significant, pathological lesions to account for death. The appearance of the infants, especially of those who died in an acute attack, is that of fat well-cared-for babies, sometimes cyanotic, but otherwise with normal organs and tissues. This absence of pathological lesions puzzled the medical profession in Hong Kong, and it was suggested that death might have been due to overlaying, to asphyxiation from charcoal fumes, or to accidental poisoning with native medicine. In some cases of milk intoxication oedema of the larynx was noted, in others hyperaemia of the intestines or enlargement of the right heart. In subacute cases one may find an internal anasarca—namely, oedema of the brain, respiratory tract, right heart (cause of its enlargement), spleen, liver, gall-bladder, and kidneys, as well as slight effusions into serous cavities. External oedema is comparatively rare, and if present is most likely to be seen in the form of a slight general puffiness or as a localized oedema—e.g., of the scrotum. This increased water retention may be due to acidosis (mainly lactic and pyruvic), as it has been pointed out (Fischer, 1921; Fliederbaum, 1932) that acidosis of tissues and organs increases their affinity for water. Death from human-milk intoxication, as in the acute cardiac beriberi of adults, is attributed to heart failure, caused through degeneration of the vagus nerve or loss of contractility of the heart muscle (owing to water retention). However, it is remarkable that no vagus degeneration has been reported in the case of infants who died of "infantile beriberi," and, furthermore, death may occur before the appearance of any pathological cardiac lesions, such as hydrops. It is also remarkable that cardiac stimulants do not produce any effect on the symptoms; whereas administration of vitamin B_1 is followed by a dramatic improvement and eventually by a *restitutio ad initio*. These facts would suggest that death may be of central origin (probably due to a biochemical lesion).

Since human-milk intoxication in infants is due to the ingestion of milk from B_1-avitaminotic women, one is inclined to seek an explanation for such widespread maternal B_1 avitaminosis.

Reason for Prevalence of Maternal B_1 Avitaminosis

It is generally accepted that the requirements of vitamin B_1 are in direct proportion to the intake of carbohydrates. In Hong Kong highly milled rice is the only staple food of the Chinese, and consequently B_1 avitaminosis is widespread. In the case of pregnant and lactating women this condition becomes aggravated and often manifests itself as beriberi, because of: (*a*) increased physiological requirements, (*b*) increased excretion of vitamin B_1 in milk, (*c*) increased appetite being satisfied mostly by highly milled rice, and (*d*) food prejudices. Thus they believe that fruit and vegetables are unhealthy because they give rise to "wind," which is transmitted with their milk to their infants. Consequently, they abstain from fruit and vegetables for at least one month after delivery—in the case of male infants often during the whole period of nursing. This custom, as well as the fact that male infants are often overfed, explains the apparent predilection of milk intoxication for the male sex.

From the beginning of the war large stocks of milled rice were stored in Hong Kong. Even highly milled rice, if fresh, contains a certain amount of vitamin B_1; but this gradually disappears on storage. In the course of time rice which had been stored for longer periods than hitherto was distributed to the population, with the result that B_1 avitaminosis, followed by pellagra and ariboflavinosis, increased tremendously and appeared even in institutions which up to then had been free of any deficiency diseases. Consequently, human-milk intoxication among infants must have correspondingly increased (no statistics are available). Indeed, one could see on the streets a greater number of infants with the characteristic habitus or the symptoms of chronic intoxication, or with the incipient cyanosis and dyspnoea of an acute attack. After the Japanese

occupation of the colony this long-stored rice was severely rationed, so that individuals received approximately only one-third of the amount previously consumed. Consequently undernourishment was added to B_1 avitaminosis, with the result that the secretion of lactating women either considerably diminished or completely ceased. Thereafter one could see many undernourished infants with the symptoms of chronic milk intoxication, while acute milk intoxication had apparently disappeared. It may seem incongruous, but the fact remains that a high incidence of acute human-milk intoxication in infants indicates a certain degree of prosperity in the case of the native population. The observations of Bray (1929) on the island of Nauru support this statement. There the natives were given royalties for their phosphate deposits. As a result there was a distinct drop in their production of native foods, which were replaced by imported white flour and tinned meat. As palm toddy was prohibited they consumed large quantities of sugar-water instead. This change of diet resulted in the appearance of acute human-milk intoxication, and the infantile mortality rate rose to 40%.

Human-milk intoxication occurs whenever the staple foods of women are vitamin-B_1-deficient carbohydrates. Admittedly, in Great Britain such staple foods as the national loaf and potatoes have enough vitamin B_1 for their own metabolism; however, if the bulk of the diet consists of carbohydrates, some of them refined, the balance may be upset and result in deficiencies. In fact, deficiencies of other components of the vitamin B complex—such, for example, as riboflavin and nicotinic acid—have been reported recently in England (Slater, 1942; Duckworth, 1942; Clarke and Prescott, 1943; and others).

An apparently healthy mother with latent B_1 avitaminosis may produce milk containing intermediary metabolites just above the infant's tolerance, which would lead to predisposition to infantile complaints such as respiratory infections or persistent intestinal catarrhs. Even before the war Geiger and Rosenberg (1933), in Palestine, reported that Jewish sucklings suffering from persistent diarrhoea with toxic symptoms and excreting methylglyoxal in the urine, were cured after the administration of vitamin B_1. Popoviciu and Munteanu (1934) observed similar gastro-intestinal disturbances in Rumanian infants, which they also attributed to deficiency of vitamin B_1 in human milk. Occasionally in the paediatric wards in continental Europe and in the United States of America one encounters cases of sudden dyspnoea and cyanosis or learns of cases of sudden death in breast-fed infants. Where no pathological lesions are found to account for these occurrences, death is usually presumed to be due to status lymphaticus, laryngeal spasm, or oedema, to asphyxiation caused by blankets, pillows, or overlaying, or to strangulation with the strings of a jacket. May it not be possible that some, at least, of these puzzling and inadequately explained cases are due to human-milk intoxication?

Causes other than B_1 Avitaminosis

Furthermore, it is quite possible that accumulations of intermediary metabolites may also occur in other conditions in which there is a disordered carbohydrate metabolism, as in cases of glandular dysfunction—e.g., diabetes; or in other vitamin-deficiency diseases such as nicotinic acid and riboflavin deficiencies (the last two conditions most probably associated with B_1 avitaminosis).

It is conceivable that human milk intoxication occurs whenever B.B.S. are increased in the human body; and their increase has been found in various conditions other than B_1 avitaminosis—viz., acidosis, ketosis, anoxaemia, toxaemia, and uraemia (Wilkins, Taylor, and Weiss, 1937), as well as in diabetes, anaemia, epidemic dropsy, and splenomegaly (Wilson and Ghosh, 1937). However, the correlation between the nature and amount of intermediary metabolites in human milk and the symptoms in an infant fed on such a milk have yet to be definitely established. To the best of my knowledge such work has not yet been undertaken, my own investigations in that field having been curtailed after a short time.

It would seem that the statement that breast milk is the best food for an infant should be qualified by the proviso that it is secreted by a healthy woman.

Summary

It is suggested that the term "breast-milk intoxication" or "human-milk intoxication" be substituted for the term "infantile beriberi."

It is also suggested that in addition to methylglyoxal, hitherto considered to be the only toxic factor in the milk of B_1-avitaminotic women, other intermediary metabolites, in concentration encountered in the milk, may play an important part in human-milk intoxication.

The action of these intermediary metabolites appears to be synergic and cumulative.

The symptoms of human-milk intoxication are discussed.

It is pointed out that accumulation of intermediary metabolites in the milk of lactating women may be encountered in conditions other than B_1 avitaminosis and thus cause an intoxication.

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ACUTE BRACHIAL RADICULITIS

BY

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Spillane (1943) has drawn attention to the comparative frequency of cases of neuritis of the nerves around the shoulder girdle in his experience with the M.E.F. Cases also occur in which the incidence is predominantly on the roots of the brachial plexus rather than on the peripheral nerves, and combinations of these conditions are seen in other patients. This paper is based on 36 cases—24 personally observed in various stages of the disease and 12 seen by Major Philip Buckley, R.A.M.C.

The essential clinical picture is a simple one: severe pain starts across the back of the shoulder and radiates down the outer side of the arm and sometimes on to the upper part of the chest; the pain remains severe for a few days and then weakness of the shoulder develops, sometimes accompanied by numbness. As the paralysis appears the severe pain usually passes off and is replaced by a dull ache, the paralysis persisting.

Illustrative Case History

An R.A.F. corporal aged 33 was admitted to hospital on Sept. 15, 1942, with the history that six weeks previously he had developed very severe pain across the back of both shoulder-blades, which radiated down the outer side of the right arm and forearm; the severe pain persisted for about five days and was then replaced by a dull ache. On the third day of the severe pain he noted considerable weakness of both arms, but especially the right, and this weakness had persisted unchanged. There were no general symptoms of malaise or fever at the onset of the illness, and his past history was uneventful except for attacks of migraine.

On examination he had winging of the left scapula due to paralysis of the serratus magnus. In the right arm there was considerable wasting of the spinati, deltoid, biceps, supinator longus, and the clavicular head of the pectoralis major. There was minimal voluntary power in the supinator longus, while the other wasted muscles were weak; the biceps and supinator jerks were absent, and the triceps jerk just present. On sensory testing there was impairment of cutaneous sensibility down the outer side of the right arm

and forearm in the distribution of C.5 and 6 segments. There were no other abnormal neurological signs. The W.R. was negative. The C.S.F. was under pressure of 150 mm. and there was no block on jugular compression; it contained 1 lymphocyte per c.mm. and the protein was 30 mg. per 100 c.cm.

He was treated with massage and exercises. In the course of two months there had been considerable improvement in the right arm; the biceps and deltoid were of normal power, the spinati and supinator longus moderately weak. The biceps jerk was feeble and the supinator jerk still absent: the sensory impairment was still present, but over a smaller area than previously. The left serratus magnus remained paralysed.

Anatomical Distribution of the Lesions in the Series

(*a*) *Cases Confined to a Single Peripheral Nerve.*—The peripheral nerve most commonly involved was the long thoracic nerve, with resultant winging of the scapula and difficulty in raising the affected arm above a right-angle. Isolated palsies of this nerve have been recognized for many years, and Richardson, in 1942, drew attention to their comparative frequency. The reason for including the isolated non-traumatic cases in this series is because in 4 instances paralysis of the serratus magnus has occurred on one side with involvement of other muscles in the other arm, while in 6 cases other muscles on the same side have been involved, together with the serratus magnus. There have also been 11 examples of isolated serratus magnus palsy. It has been found that if the paralysis of this muscle first occurs while the patient is in bed with some other complaint he may not notice the muscle weakness himself; it is usually first noted when he tries to stretch up to take something off a high shelf. The suprascapular nerve has been involved alone in two cases with paralysis of supra- and infra-spinatus and weakness of external rotation of the arm. It was noticeable in one case, seen some months after the onset of the disability, that the two muscles were involved in very different degrees, the infraspinatus being considerably weaker and more wasted than the supraspinatus. There were two examples of isolated circumflex palsies with paralysis of the deltoid and sensory impairment over the nerve distribution. In one case the musculo-cutaneous was the only nerve involved, with loss of power of the biceps and sensory impairment in the distribution of the lateral cutaneous nerve of the forearm. The disability was relatively slight, as good flexion of the elbow was carried out by the supinator longus, the main weakness being in supination.

(*b*) *Cases of Root Involvement.*—There were 5 examples of involvement of C.5 and 6 roots, of which the case described above is one. In these cases the muscles affected were the spinati, deltoid, biceps, supinator longus, and sometimes the clavicular head of the pectoralis major; and there was impairment or absence of the biceps and supinator jerks, with sensory impairment on the outer side of the arm and forearm. In one case the C.7 root was affected in addition to C.5 and 6, as shown by weakness of the triceps and extensors of the wrist and fingers as well as of the muscles just mentioned.

(*c*) *Muscle Involvement Not Explicable in Above Groups.*—In a number the muscle weakness was not explicable on the basis of involvement of a single peripheral nerve or in terms of root distribution, as in the following cases: spinati and serratus magnus on one side (2 cases); deltoid and spinati (7 cases); deltoid and biceps (1 case); spinati and serratus magnus on both sides (2 cases); sterno-mastoid, trapezius, deltoid, spinati, and serratus magnus (1 case); while in another case there was widespread bilateral involvement affecting the spinati, deltoid, and triceps on one side, with the spinati, biceps, triceps, and extensors of the wrist and fingers on the other; in this patient, sensory impairment was found over the lateral side of both forearms. In these cases there is often a different degree of involvement of the various muscles affected. It is possible that the distribution is explicable on the basis of involvement of more than one peripheral nerve—for instance, the long thoracic and suprascapular in the serratus and spinati cases—or by partial involvement of one or more spinal roots.

(*d*) *Bilateral Cases.*—In 9 of the 36 cases there has been bilateral involvement, usually asymmetrical. In 7 cases the two sides were affected at the same time or with an interval of one or two days, but in the remaining 2 cases there was a longer interval: in one, three weeks elapsed before the second arm was involved; and, in the other, six months between paralysis of the serratus magnus on one side and the spinati on the other.

Other Features of the Disease

Precipitating Causes.—The age incidence has been 16 to 54, and all the cases have been in males; this is probably on account of the selected Service personnel seen. The geographical incidence of the disorder appears to be wide; in this series the onset has occurred in the United Kingdom, Iceland, the Middle East, Tunisia, Italy, Uganda, Nigeria, India, and in one case at sea off the West African coast. In a number of the cases a possible precipitating factor has been found. In no fewer than 9 cases the onset has followed closely on a surgical operation: in 8 of them herniotomy, and in the other excision of a pilonidal cyst. The anaesthetics were varied—spinal in 4 cases, general in 3, spinal in combination with a general anaesthetic in 1, and intravenous in the last. The time interval between the operation and the presenting pain of the radiculitis has been from 2 to 4 days in 6 cases, 6 to 7 days in 2 cases, and 10 days in 1 case. This time interval rules out as the causative factor trauma during the operation from pressure against the side of the table or other accident of that type. Eight cases were related to infections, the onset of the radiculitis usually being during the period of convalescence: malaria in 2, influenza in 2, and pneumonia, glandular fever, dysentery, and an axillary abscess in 1 case each. In this last case the disorder was bilateral and so could not have been the direct result of the abscess. Two cases followed a week after a fall on the shoulder; although pain and muscular weakness in each case developed on the same side as the fall, the trauma was slight and there was a complete absence of symptoms in the week immediately after the fall. One man developed the presenting symptoms of pain during a period of severe exposure to cold and rain while escaping from a P.O.W. camp. Two cases followed diagnostic procedures—one 10 days after a lumbar encephalogram for a suspected cerebral tumour, and one on the day after a lumbar puncture. (This was done on account of a prolapsed lumbo-sacral intervertebral disk.)

The question of prophylactic inoculations in the possible aetiology of these cases has been raised, but it is difficult to draw any conclusions from this series. One patient had an anti-typhus inoculation three days previously and 1 two weeks previously, while 3 patients had had T.A.B., the interval between inoculation and onset of symptoms being 18 days, 4 weeks, and 5 weeks. Another man had had A.T.T. three weeks previously, while in the remaining cases no recent inoculations had been given.

Onset of the Disorder

The absence of general symptoms of fever and malaise is remarkable; in only two cases was there slight malaise when the pain started. The presenting symptom is always pain; it is across the back of the shoulder and down the outer side of the arm; in bilateral cases it spreads to both shoulders and arms, and in cases in which the C.6 or C.7 root is affected it spreads to the outer side of the forearm. The pain is continuous and is usually of considerable severity; in only 3 of the cases was it described as slight.

The duration of the severe pain before muscle weakness first appeared has varied from a few hours to two weeks or possibly slightly longer, the usual length of time being three to four days. The severe pain tends to pass off as the weakness develops, and may be replaced by a dull ache; but in some cases severe pain has lasted for two to three weeks, although the paralysis has occurred within a few days of the onset of the pain. The onset of weakness in the majority of cases is sudden, with a maximum at the onset, but 4 patients said that the weakness had progressed over the course of two to three days.

Sensory Changes

No sensory impairment was found when a motor nerve, such as the long thoracic or suprascapular, was alone involved; in the cases of involvement of the circumflex and musculo-cutaneous there was cutaneous impairment to all forms of sensation in the area expected, and in 5 cases in which C.5

and 6 roots were affected there was impairment down the lateral side of the arm and forearm. Of the mixed cases only two (in which the deltoid was involved) showed some sensory impairment over the skin on the outer side of the arm, and the case previously mentioned in which there was impairment over the lateral side of both forearms. In the other patients no sensory impairment could be found.

Special Investigations

As many of these cases have been seen some time after the onset, detailed investigations in the acute stage have been infrequent, but when they have been possible the C.S.F., blood count, and E.S.R. have been normal, and Spillane also found this in his cases. The only exception was the finding of 10 lymphocytes per c.mm. in the C.S.F. in the case of glandular fever with radicular involvement.

Prognosis is difficult to determine in view of the varying times after the onset at which these cases have been examined. The prognosis in the serratus magnus palsies is on the whole poor: of the 21 cases in which this muscle has been involved 3 were partial from the beginning, and of these one had shown definite improvement after three months, while the other two were apparently stationary in the same period. Of the complete cases, 1 recovered completely in four months, while 5 had shown partial recovery in periods ranging from three to seven months; the remaining cases still had complete palsies when last examined at periods ranging from three to eighteen months after the onset.

Once marked atrophy has occurred in a muscle the prospect of recovery is poor; when localized atrophy is only slight, considerable and even complete recovery may occur, though the onset of recovery may be delayed for as long as six months and possibly more. In a few cases recovery has started within three to four weeks and has progressed rapidly.

Pathogenesis

There has as yet been no pathological material available from cases of this disorder; it appears, on clinical grounds, that the condition can affect single peripheral nerves, nerve roots, or combinations of these. Riddoch (1944) has suggested that the anterior horn cells may be involved in some cases, basing this view on the rapid muscular wasting which may be present and on the scattered nature of the muscular involvement which is occasionally seen. No exactly comparable condition seems to occur in the lower limbs.

The best name for the disorder is uncertain in the absence of a known aetiology or pathology. Acute brachial neuritis is already used for a different clinical syndrome, and the name applied by Spillane of "localized neuritis around the shoulder girdle" is hardly comprehensive enough. For these reasons the term "acute brachial radiculitis" has been applied to it for the time being till more is known about its aetiology.

The differential points from anterior poliomyelitis, to which it bears some clinical resemblance, have been admirably summarized by Spillane, the main ones being: the absence of signs of general disturbance in the acute stage; the normal C.S.F. when this has been examined early in the illness; the sensory impairment in a number of the cases; and the occurrence of these cases in the absence of typical cases of poliomyelitis in the same district at the same time. To these may be added the fact that it may occur at the age of 50—a most unusual happening with poliomyelitis.

The aetiology of the condition is still speculative, and the somewhat mixed group of apparently precipitating causes has not helped on this point. It has been suggested that a virus infection is the cause: the main point against this is the absence of fever or other signs of general infection and the normal C.S.F findings. In most diseases due to neurotropic viruses—even in zoster, in which the main incidence of the infection is on the posterior root ganglia—an increase of cells is found in the C.S.F.

There is one condition which has a very close clinical resemblance to it, and that is serum neuritis (Kennedy, 1929; Young, 1932). This may occur after the injection of any form of serum, usually about the seventh to ninth day; there are frequently the usual symptoms of serum sickness, followed within a day or two by severe pain in the region of the shoulder and upper arm; muscle weakness shows within the next few days, and when this happens the severe pain passes off. The paralysis which may be accompanied by sensory changes is most often in the distribution of the fifth and sixth roots or the circumflex nerve, but at times paralysis of the serratus magnus may arise. The exact cause of these cases is uncertain, but it is thought that oedema of the affected nerves occurs as a reaction to the foreign protein in the serum. I think that the possibility of some, as yet uncertain, aetiological relationship between serum neuritis and acute brachial radiculitis must be considered before assuming that a neurotropic virus is the causative agent.

With the lack of knowledge of the aetiology, treatment can be only palliative—analgesics for the pain in the acute stage, support for paralysed muscles to prevent stretching, and active and passive exercises and electrical stimulation of the affected muscles when the painful stage has passed.

Summary

The syndrome of pain around the shoulder, followed in the course of a few days by muscular weakness and wasting and at times sensory changes, is described.

The anatomical distribution of the weakness can be a single peripheral nerve, two or more spinal roots, or combinations of these.

A number of apparent precipitating factors are mentioned, the most outstanding being operation for hernia in 8 of the 36 cases.

The possible aetiology is discussed and an analogy drawn between this condition of acute brachial radiculitis and serum neuritis.

My thanks are due to Major-Gen. Mitchiner, C.B.E., for permission to publish this paper; to Brig. Riddoch for help in its production; and to Major P. S. Buckley, R.A.M.C., for the use of notes of cases under his care.

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THE TRANSNASAL INTRAGASTRIC RYLE'S TUBE IN TROPICAL PRACTICE

A LIFE-SAVING MEASURE

BY

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Ryle's tubes have been used by us in a series of 355 acute medical cases during the past year. So far as can be ascertained, this represents the first extensive trial, in tropical practice, in which the method has been applied to the problems of hydration and alimentation presented by such acute cases. Its use was introduced, in the first place, to meet the special problem of the dehydrated patient who would not or could not drink that amount of fluid considered necessary for him. Dehydration, among coolies especially, was seen on a scale rarely encountered in civil practice, and in many cases was so gross as to resemble that of cholera. Marriott's (1943) teaching of the fatuity of what he calls "the homoeopathic dosage of a pint or two" is wasted unless we realize that in gross dehydration the fluid loss is to be measured in gallons. Furthermore, some of these patients refused to drink, and spat out the water or saline offered to them. In a series of 30 of our cases this symptom was found to be associated with a low serum chloride figure, and possibly represents a vicarious form of water intoxication. In the more robust patients this can be corrected by the intravenous injection of one or more pints of hypertonic (2 N) saline solution, after which the previously non-drinking dehydrated patient will drink avidly. Other patients, however, are often so enfeebled by disease on admission to hospital that for them to drink is too much effort. It is in such cases that the tube becomes a life-saving instrument, since by its use the body fluid may be restored in a few hours.

About five pints of normal saline solution can be given to these patients by slow intravenous drip in a 24-hour period, but this represents only a fraction of the fluid loss. To give more by the intravenous route, which has been tried, exposes the patient to the very grave risk of pulmonary oedema, particularly if there is any central circulatory weakness and if the serum proteins are low. On the other hand, a large quantity of fluid can safely be absorbed from the alimentary canal when administered through the Ryle's tube.

Appreciation of the advantage of this method after a short trial led to the extension of its use to include practically every type of case whose state of hydration was in any respect inadequate or in which fluids required to be forced. Such were the following cases: malaria and blackwater fever, cerebral malaria (over 100 cases), cerebrospinal meningitis (65 cases), enteric fever and typhus, pneumonia, psychoses, and coma due to other causes—e.g., head injuries.

Advantages of the Nasal Route

1. When *in situ* Ryle's intragastric tube is comfortable—indeed, not felt.

2. Food, fluids, and drugs may be given as necessary, independently of the patient's desires. Unpleasant-tasting drugs such as quinine and paraldehyde may be given without distress, and are retained.

3. In lung cases the respiration is not embarrassed.

4. Adequate fluid intake can be ensured, and its quantity accurately measured and recorded. The quantity given may be large and yet without the risk of producing pulmonary oedema. In gross dehydration the fluid required may be as much as 10 to 15 pints. In relation to this it is worthy of note that, although water absorbed from the alimentary canal is followed by a speedy diuresis, physiological saline does not have this effect. Further, saline absorbed from the alimentary canal is better retained and produces a less immediate diuresis than does saline given direct into the blood stream (Wright, 1940).

Technique of Passing the Tube

Cases may be divided into three groups: (1) those with a swallowing reflex even in the presence of coma; (2) those without a swallowing reflex—i.e., cases in deep coma; (3) refractory patients—e.g., maniacal and cerebral irritation cases. The first essential is to test the tube for patency and leaks by syringing a little water through it. Lubrication of the tube is all-important, and the best means is with liquid paraffin, although vaseline or olive oil may be used. With apprehensive or non-cooperative patients analgesia of the nose and soft palate may be induced by 5% percaine nasal spray, but this has not been necessary in military practice. It is desirable to sit up the patient and then proceed as follows:

Group 1.—Pass the tube into the nostril, choosing the one which is the more patent, and gently push it backwards along the floor of the nasopharynx. The passage past the turbinates is assisted by tilting up the tip of the nose with the finger. Now pass 6 to 8 in. of the tube, when the patient will cough; wait until the inevitable retching occurs, followed by a swallow, which will draw the tube into the oesophagus; after this it may be rapidly pushed down to the third mark on the tube. Swallowing may be aided by instructions to the patient, by water to drink, or by placing something palatable on the tongue. There is no danger of getting the tube into the larynx if the act of swallowing is awaited before passing it onward.

Group 2.—Prop up the patient and lean him forward. Put two fingers into the mouth and the posterior pharynx, using a mouth-gag if necessary. Pass the tube through the nostril and into the pharynx as before, and use the fingers to guide it behind the epiglottis into the oesophagus. It is then pushed onward as before. A tube passed into the trachea speaks for itself. Prove that the tube is *in situ* by aspirating a little of the gastric contents.

Group 3.—Refractory patients may be dealt with by either of two methods. One is to anaesthetize with an intravenous barbiturate (evipan sodium) just short of abolishing the swallowing reflex. If this is abolished, wait until it returns and then proceed as in Group 1. When the tube is in the stomach put in a dose of potassium bromide gr. 40, chloral hydrate gr. 20, with or without tinct. opii mm. 20, or paraldehyde drs. 2. The alternative method is to produce twilight sleep with intramuscular sodium luminal or subcutaneous scopolamine-morphine before attempting to pass the tube. By employing these methods with judgment unseemly struggles are avoided.

With a little practice it is very easy to become really proficient at passing an intragastric Ryle's tube. Three or four successes make anyone confident. It is important to train as many as possible to do this. Our nursing officers and trained nursing sepoys soon do it with ease.

Fixation of the Tube

Bring the free end alongside the nose and up to the forehead between the eyes, and fix it with strapping. When not in use the free end should be tied or be closed with a clip. Some patients, especially psychotics, tend to pull out the tube at first. This may be overcome by splinting the arms to prevent flexion of the elbow and tying to the bed if necessary, and/or giving sedatives through the tube. Patients, however, soon become accustomed to it, and are scarcely aware of its presence. Recently, a Chinese patient with a delightfully indolent attitude towards life became extremely annoyed when his tube was removed and he once more had to rouse himself for food and drink.

The period during which the tube is *in situ* is governed by the condition and progress of the patient. It varies between 12 hours and three or four days. One of our patients, a psychotic, had a tube in place for three weeks without ill effect or fouling of the tube. Fluids and feeds may be given either as a continuous drip, using a graduated flask and Murphy drip apparatus, or by means of a funnel without drip connexion. The former method is preferable in cases of coma, since the rate of absorption proceeds *pari passu* with the rate of drip, and regurgitation is thus avoided.

Possible Drawbacks

In discussing this method with Brig. H. L. Marriott, Consulting Physician, India Command, and Col. G. F. Taylor, Consulting Physician, Eastern Army, two possible objections to its use were raised—namely, the possibility of ulceration of the laryngopharynx, and the danger of bronchopneumonia arising from the aspiration of gastric contents regurgitated alongside the tube. Consequently, in 19 cases treated by this method which ultimately came to necropsy these ill effects were sought, but were never found. In coma the method of dripping-in fluid minimizes the risk of regurgitation.

Serum proteins have been estimated in some 300 cases of varying type coming under our care, and in an alarming proportion of these low albumin figures have been observed, especially among coolie personnel. Care must be taken not to force the fluid to excess in these, as in a few instances a generalized anasarca has resulted. Constant reference to a "fluid intake-output chart," which we always keep in our wards, forms a valuable guide to the fluid balance.

Discussion

Although this method has been employed previously in surgical practice for continuous gastric drainage and in head injuries (McAlpine, 1944), and in medical practice for the continuous duodenal drip feeding in peptic ulceration and recently during the Bengal famine (Indian Research Fund Association, 1944), its value is by no means so well known as it deserves to be. Recent graduates from the medical schools of Bombay, Madras, Calcutta, Patna, and Lahore are unfamiliar with its application to acute medicine, and as these have been interns, we can only assume that either the method is not used in the teaching institutions of India or its use has been sporadic.

One of us, with five years' postgraduate experience of acute medicine in teaching hospitals in London and four in Singapore, regards the full application of this method, forced on him by the exigencies of war, as a considerable advance in treatment, and, had he only been earlier aware of its full possibilities, believes that certain patients who died in the Medical College Hospital in Singapore would have been saved by its bold use. Particularly has it solved the problem of hydration in malarial coma, in which, owing to the reduction of serum albumin brought about by the disease itself, and frequently a pre-existing condition as well, the risk of pulmonary and secondary cerebral oedema following intravenous saline infusion is very real, as has been widely appreciated in the past (Thomas and Sydenstricker, 1940).

A most important lesson we have learnt is that no patient is too ill to have a tube passed. Even seemingly moribund dehydrated cases of pneumonia and meningococcal meningitis have been saved by this method. These patients were so ill that had one not had previous experience of the intragastric drip one would not have dared to pass a tube. Brinton (1941) draws attention to severe dehydration developing during cerebrospinal fever, and mentions the method of giving fluid by means of a nasal catheter, but does not convey to the reader that an intragastric tube is used, and states that an adult should take 2 to 3 pints of fluid every 24 hours. This demonstrates the difference in tropical practice, in which, in the same disease, a fluid intake limited to 3 pints a day would lead to disaster not only from dehydration but commonly in the form of sulphapyridine haematuria. We have in these cases used Ryle's tube with such complete success for the administration of large quantities of fluid, and also sulphapyridine, that to pass a tube in cerebrospinal fever is now our routine procedure.

It was with some trepidation that this method was first employed in acute pulmonary disease, but the need for fluid was so great that it was attempted, the intravenous route being out of the question and the rectal "not satisfyingly certain" (Bailey, 1939). It was not found appreciably to embarrass respiration—rather less so than do many forms of oxygen apparatus in common use. An especial advantage is that hydration proceeds during sleep.

The attitude of our nursing staff, drawn from all parts of the British Commonwealth, has been one of unqualified approval, since it saves much of their time spent in repeatedly requesting the patient to drink. The tube achieves what may only otherwise be done by special day and night sisters under nursing-home conditions.

It is realized that this practice is not as familiar as it should be, and we are certain that an extension of its use and emphasis on the quantity of fluid needed will be found to save the lives of many people whom one would ordinarily expect to die in a few hours.

Our thanks are due to Col. F. R. Cawthorn, I.A.M.C., for the facilities given to us in developing this technique and for permission to publish this article. We also wish to acknowledge the valuable and willing co-operation of many nursing and medical officers.

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SUPRARENAL HAEMORRHAGE

REPORT OF A CASE

BY

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Below we report a case of suprarenal haemorrhage diagnosed during life. The clinical data are best presented as day-to-day details.

Case History

The patient was an unmarried woman, aged 23, and before the onset of symptoms was apparently in excellent health. The illness began on a Saturday, during the height of the influenza epidemic last winter, but the patient did not send for her doctor until the following Monday.

Saturday.—Onset of malaise, slight sore throat, short dry cough, and one attack of vomiting.

Sunday.—Main complaint now was of "feeling cold." The throat was still sore, but there was in addition a complaint of pain in the lumbar region. This pain was never severe, and was not referred to the region of the loins. The symptom she stressed especially was the persistent feeling of cold.

Monday.—She called in one of us, and was seen for the first time at 3 p.m. The story of the preceding days was elicited, and in addition she complained of frontal headache, and was found to be menstruating. The menstrual period was to time, but the loss was excessive. The symptoms of the previous day were still present, but were no worse. On examination temperature 100°; pulse 84, with fair volume, regular and apparently normal tension; fauces and pharynx injected, but no gross clinical tonsillitis and no exudate. There was no cervical adenopathy or coryza. The heart, lungs, and abdomen presented no abnormality. There were no signs of meningeal irritation, and no change in the optic fundi or drum-heads. The skin did not show any rash and there was no sweating.

Tuesday.—During the early hours of the morning the patient complained of intense cold and a feeling of profound fatigue. She was seen by C. J. W. again at 6 p.m. The whole picture was now in marked contrast with that of the previous evening. The woman was restless and had an anxious look. She was intensely cyanosed, especially in the face and lips, hands and forearms, feet, and legs up to the knees. The temperature was 96° and there was a profuse cold sweat. The pulse rate was 120, regular, but of poor volume; respirations 30, with frequent sighings. Examination of lungs, heart, and abdomen revealed nothing further. Central nervous system: Mentally clear and co-operative; cranial nerves normal, optic fundi normal, pupils dilated but reacting normally; knee- and ankle-jerks absent; arm-jerks present but weak; plantar response flexor. The arms and legs could be moved only with difficulty. Light touch, pin-prick, heat, and cold were blunted over the extremities, but deep sensation was normal.

At 8 p.m. the same day the woman's condition was obviously worse. The cyanosis was deeper, and there was no pulse at the wrist; she was mentally apathetic but rational, and was still sweating profusely.

At 11 p.m. she was seen in consultation. The main findings were as above: the heart rate was now about 160 or over, and the clinical state was obviously deteriorating rapidly. At this stage a tentative diagnosis of suprarenal haemorrhage was made, and adrenaline, pituitrin, strophanthin, etc., were administered. No cortical extract was immediately available. The patient died three hours later, at 2 a.m. on the Wednesday morning, after an illness lasting about four days.

Post-mortem Examination.—The right adrenal was completely disrupted by haemorrhage, which had burst through the capsule of the gland. The left adrenal showed discrete haemorrhagic areas throughout its substance. The other organs were macroscopically normal. There was no haemorrhage into serous membranes or any splenic enlargement. The necropsy was performed under difficulties, but was reasonably complete.

Discussion

This case presented great diagnostic difficulties. As mentioned previously, it occurred at the height of an influenza epidemic, with fresh cases of influenza being seen hourly, and not unnaturally the diagnosis when first seen was influenza—a diagnosis which may have been correct. But the striking change for the worse which occurred between the first and second visits of C. J. W. obviously called for a further diagnosis. The clinical picture was one of profound circulatory collapse, the cause of which an examination failed to reveal.

The unusually heavy menstrual period suggested the possibility of an abortion, and the question of poisoning by some drug taken to procure abortion was discussed. Hospital investigation was out of the question; the patient lived in a lonely farmhouse, and the weather was so foggy that she could be visited only with the greatest difficulty. At the midnight consultation it seemed that the only diagnosis which would account for the profound asthenia was acute suprarenal failure. This very tentative diagnosis was confirmed by the necropsy.

The literature of acute suprarenal haemorrhage has become quite extensive, though the number of recorded cases, so far as we have been able to discover, does not exceed about 60; owing to wartime difficulties our search of the literature has not been as complete as we would wish, and we are open to correction on this point. By far the greater number of recorded cases and discussions concern the now well-recognized Waterhouse-Friderichsen syndrome, due in the majority of cases to meningococcal septicaemia, the symptomatology being characterized by sudden onset, malaise, restlessness, often vomiting and diarrhoea, followed by cardiovascular collapse with intense cyanosis, often a striking purpuric eruption, and death within 24 hours. But deviations from the syndrome have been recorded by many writers, and

classifications have been attempted based on the presenting or dominating symptoms. Thus we have the well-recognized "peritoneal" type, simulating the acute abdomen; a "nervous" type, presenting with convulsions and delirium; and a third variety simulating a severe purpura. An "asthenic" type was described by Arnaud as early as 1900, but the original reference was not available, and we know of no case-description, except the one recorded above, which typifies this asthenic group of Arnaud.

Conclusion

The features of the above case which seem to deserve emphasis are: (1) The insidious onset, but ultimately rapid collapse due to apparently causeless circulatory failure. (2) The absence of abdominal pain, which if present would have been of real diagnostic help, and this despite the severe haemorrhage into the right suprarenal; the same applies to the absence of petechiae. (3) It has been suggested that the purpura, when it occurs, is merely a manifestation of severe septicaemia: our case would support this belief. (4) The diagnostic value of the intense cyanosis associated with cardiovascular collapse. The cyanosis is much more striking than in any ordinary variety of acute heart failure, such as that due to a coronary thrombosis. (5) Was the patient really suffering from influenza and, if so, was the influenza responsible for the suprarenal failure? At no time did the case suggest a septicaemic state.

Summary

A case of suprarenal haemorrhage of the so-called "asthenic" type is described; the diagnostic difficulties are discussed. It was possible to suspect the diagnosis during life as the only explanation of the profound cardiovascular collapse.

Medical Memoranda

Acute Appendicitis, treated with Penicillin

I would like to bring forward the following case record to show the dramatic effect of penicillin in what would otherwise have been a hopeless case of acute appendicitis, with perforation, gangrene, and general peritonitis.

Case History

A male aged 4 years 11 months was admitted to this hospital on Aug. 16, 1944, at 2.20 p.m. The previous day he had been ill with vomiting, and when seen by his own doctor had shown all the classic signs of acute appendicitis. On admission he had a tender and rigid abdomen, with pain more pronounced in the right iliac fossa. The knees were drawn up, he was restless, and he looked very ill. Temperature 101.8°; pulse 136.

Operation was performed at 3.5 p.m. under open ether—right pararectal incision. The abdomen contained thin greenish foul-smelling fluid, with gas. The appendix was found to be retrocaecal, coiled up on the caecum, with the thickened omentum wrapped over it. The omentum was separated and a small gangrenous portion removed. The appendix was perforated about the middle, and was also gangrenous in this area. The neighbouring bowel was covered with soft greenish fibrin over a wide area. The appendix was removed, the R.I.F. well swabbed out, a drainage-tube inserted, and the wound closed.

A specimen of the fluid in the abdomen was sent to the pathologist at St. John's Hospital, and he reported the presence of *Str. haemolyticus*, staphylococci, and a Gram-negative diplococcus.

Immediately after operation 1.2 c.cm. of nikethamide (coramine) and 1 c.cm. of staphylococcus antitoxin were injected. Sodium sulphapyridine 3 c.cm.—i.e., 1 g.—was injected 4-hourly, also transpulmin 1 c.cm. b.d. The child's condition was very poor: temperature 99°, pulse 164; vomiting brown fluid; very restless, and delirious. 1 c.cm. of camphor in oil was injected during the night. Next day his condition had not improved: temperature 97.8°, pulse 158; delirium, vomiting, and restlessness continued; sedatives had no effect.

At 6.15 on this day treatment with penicillin was begun, and the sulphapyridine was stopped. The method of administration was to run in 15,000 units, in a strength of 2,500 units per c.cm., through a catheter and pass it into the abdomen through the drainage-tube. The catheter was clipped to keep the penicillin within the abdomen. This procedure was repeated every three hours, but before each fresh injection the fluid in the abdomen was withdrawn through the catheter by means of a syringe. Pathological tests were taken of each syringeful of fluid so withdrawn. This treatment was carried out as stated every three hours for the next 48 hours, making 14 injections in all and employing 200,000 units of penicillin.

The child made little progress for the first 24 hours, but was quieter, with temperature 98.4° and pulse 136, and the report on the abdominal fluid showed that the growth of streptococci was inhibited, while the Gram-negative bacilli were still present, and were mostly coliforms.

After the first 24 hours the child began to make a striking recovery. The restlessness, vomiting, and delirium ceased, the temperature was 98.4° and pulse 132, he began to take fluids, and he had a good bowel action. On the third and fourth days after the operation penicillin was employed twice daily, morning and evening, in the form of an irrigation of the abdomen, with 20,000 units in the same strength as before; but it was not now retained in the abdomen, the catheter was not clipped, and a smaller drainage-tube was inserted. A pathological report showed no growth of streptococci.

At the end of the fourth day the drainage-tube was removed; there was no discharge, the wound was clean and healthy, and the child was quite well, taking food by mouth and sleeping normally. His subsequent progress has been uneventful.

Comment

The above case shows that the abdominal cavity can be sterilized by repeated aspirations of exudate and replacement with penicillin, and that the toxic condition is thereby relieved. Penicillin eliminated the infection so that the patient's resistance was raised and his general condition improved; this contrasted strikingly with his previous very toxic state, in which subnormal temperature, rapid pulse, vomiting, and delirium were all present, indicating a very poor prognosis.

A total of 200,000 units of penicillin was left in the abdominal cavity in the first 48 hours, and in the subsequent 48 hours 80,000 units were used for irrigation.

I wish to record my great thanks to the American Ambulance Unit of Great Britain who so kindly and promptly sent a supply of penicillin in one of their cars. They must be proud to know that they have saved the life of this child. I would also like to thank the pathologist for his interest and co-operation in carrying out the pathological investigations, and the medical superintendent—Mr. G. Richardson—for helping me to write this report. I am very grateful that I have had this opportunity of treatment with penicillin, for I can now spread the light of this experience in my own country when I return there after the war.

MARIE KALISOVA, M.D.Brno.
South Eastern Hospital for Children.

Agranulocytosis after Use of Thiouracil

The following case is indicative of a complication of thiouracil therapy which seems to occur with rather variable quantities of the drug. In view of the early stage in experience of the complication this record may merit publication.

Case History

The patient was a married woman aged 61. In 1907, at the age of 24, she developed a localized enlargement of the left lobe of the thyroid gland with marked toxic symptoms. She underwent an operation for the removal of the left lobe. There were no further symptoms, and she remained entirely fit until three years ago, when mild thyrotoxicosis recurred—sweating, nervousness, and slight tremor being the only symptoms. Owing to an exacerbation of symptoms, and a severe tachycardia having supervened, she was admitted to another hospital in Jan., 1944, for thiouracil therapy.

She was given five 0.2 g. tablets daily for one month, and by the end of that time had lost all her toxic symptoms and felt well. She was kept on a maintenance dose of one 0.2 g. tablet a day, and returned home three weeks later still taking this dose. At the end of March, after about 10 weeks' treatment, she was told to have a white cell count done as an out-patient. She omitted to do this, and still continued to take 0.2 g. of thiouracil daily.

At the beginning of May, after three months and one week's treatment, she had an acute febrile attack with some ulceration of the mouth and sore throat, which were untreated but cleared up entirely within six days. On May 27, having had exactly four months of continuous thiouracil, she had an identical though very much more severe febrile attack, and was admitted on June 3, in an acutely ill state, to St. Bartholomew's Hospital at Hill End.

On admission the following positive findings were recorded: T. 103°, P. 108, R. 24. Restless; skin hot and dry. There was much conjunctivitis of the left eye, with cellulitis spreading in the infra-orbital tissue. There was severe inflammation of the tonsils and fauces; the tonsils almost met in the midline, and spots of purulent exudate covered much of the oral and pharyngeal mucosa. The neck glands were bilaterally enlarged and tender. The thyroid was enlarged by an adenoma of the right lower pole about 3/4 in. in diameter. There were no eye signs and only slight tremor. Several petechiae were present over the chest and arms. The lungs and heart were normal. The spleen was enlarged to one inch below the costal margin; it was slightly tender. The urine had a trace of albumin, but was normal to other ward tests; it was acid, with a sp. gr. of 1010.

The day before admission a white cell count of 1,200 had been recorded; it was mainly lymphocytic, with an occasional degenerate polymorph. 10 c.cm. of pentnucleotide had been given. Shortly after admission a further 10 c.cm. of pentnucleotide was given intramuscularly and a pint of blood, warm from the donor, was rapidly transfused; 500 mg. of ascorbic acid was also given intravenously, and oral glucose and copious fluid were encouraged.

On June 4 the general condition seemed slightly improved; the left eye was frankly purulent. Large doses of ascorbic acid, 500 mg.

t.d.s., and 150 mg. of hesperidin were continued. A second pint of perfectly fresh blood was again rapidly transfused. The white cells at this stage numbered 1,500; a sternal marrow film showed marked hypoplasia with arrest of the granulocytic elements at the myelocyte stage.

On the third day, June 5, the pentnucleotide was increased to 20 c.cm. twice daily. The white cells had risen to 1,860, 149 of which were neutrophils. The fourth day saw the advent of moist sounds in the chest with some cough, but the patient herself felt much improved. A third pint of fresh blood was given. On the sixth day, June 8, there was less swelling of the neck glands, but still some rales at both bases, and the spleen had increased in size to 2 in. below the costal margin. The white cell count was then 6,700, of which 4,320 were neutrophils. A catheter specimen of urine was entirely normal microscopically and sterile. A fourth pint of fresh blood was again given. The 40 c.cm. of pentnucleotide was being maintained, though the injections gave pain and a feeling of severe malaise and anxiety of temporary nature; it was discontinued the next day, a total of 220 c.cm. having been given in seven days.

On June 13, the eleventh day, the chart was normal, the eye had almost entirely healed, and the throat was rapidly healing. The lungs were clear and the patient felt quite well. The white cells numbered 10,700. On the twenty-first day after admission the white cell count was 16,000; the spleen was easily palpable at over 2 in. below the costal margin.

Convalescence proceeded apace, and, though there was no further soreness of the throat, some considerable tonsillar enlargement remained. The patient was discharged feeling extremely well on July 12, 39 days after admission, the white cells on the last day totalling 8,100—neutrophils 65%, lymphocytes 29%, eosinophils 2%, basophils 1%, monocytes 3%.

This case had continuous thiouracil therapy for four months, with a dosage of 1 g. daily for one month and 0.2 g. daily subsequently. The neutropenia developed after three months and one week from the beginning of treatment, when the patient had taken a total of approximately 44 g. The total intake up to the second occurrence of symptoms was approximately 48 g.

Recovery was rapid after the cessation of thiouracil, and was probably due chiefly to this, although transfusion of fresh blood was no doubt of great benefit in maintaining a barrier to further spread of infection while the bone-marrow recovered its function.

I wish to express my thanks to Dr. Geoffrey Bourne for permission to publish this record for his encouragement.

DUNCAN LINSELL, M.B., B.S.

An Unusual Case of Acute Pancreatitis

The following case is considered worth reporting because of the unusual features it presented.

CASE RECORD

A healthy, well-built, and well-nourished Indian soldier, aged 27, complained of a sudden and acute onset of pain in the abdomen on the night of March 22, 1944, about four hours after his evening meal. There was a rapidly progressive collapse, and he expired before the unit M.O., who was sent for, could arrive—a matter of about 20 minutes. Death was judged to be due to heart failure, but the body was sent to the field laboratory for necropsy. There was no suspicion of foul play or poisoning, and previous to this attack he was known to be a perfectly healthy man, not addicted to any drug or alcohol and with no history of any gastro-intestinal trouble.

At the necropsy, performed a few hours after death, the paracolic gutters contained about 4 oz. of sour-smelling haemorrhagic fluid, and the lesser sac showed small scattered areas of haemorrhage. The omental fat was stained red, but did not present any areas of necrosis. The pancreas was much enlarged—length 26 cm., weight 145 g.—and the whole of it was a dark purplish black; it was very friable and adherent at places. A search for biliary and pancreatic calculi yielded negative results. The solar sympathetic plexus and the suprarenals were swollen, red, and congested. The brain had a few pin-point haemorrhages scattered throughout the cortex and medulla. The rest of the necropsy, which was a complete one, revealed nothing abnormal. Heart-blood culture and Kahn test were negative. Histological examination, carried out at the Central Pathological Laboratory, M.E.F., showed the pancreas riddled with foci of acute necrosis. The immediate cause of death seems to have been a sudden and severe shock to the sympathetic system and the suprarenals.

COMMENT

The unusual features in this case were: (i) Extremely rapid fatal termination—in fact, within 20 minutes of the onset of the first attack in a previously healthy man: usually the time taken is hours or days. (ii) Absence of calculi or inspissated bile, usually the commonest cause. (iii) Absence of septicaemia, the next commonest cause—though in the lack of any other evidence this must be assumed to have been responsible, the negative blood culture notwithstanding. (iv) Absence of the diagnostic foci of fat necrosis, probably due to the very short duration of the illness.

M. HATANGDI, M.B., B.S., D.T.M.
Capt., I.A.M.C.

Reviews

FOLLOWING UP THE HOSPITAL PATIENT

Medical Care of the Discharged Hospital Patient. By F. Jensen, M.D., H. G. Weiskotten, M.D., and M. A. Thomas, M.A. (Pp. 94; $1.00 or 6s.) New York: The Commonwealth Fund; London: Oxford University Press. 1944.

This is an American experiment from the University Hospital of Syracuse. It should be remembered that the American hospital system is different from the British and that a number of the poorer in-patients have no family doctor who can carry on the treatment begun in hospital. It is reckoned that a considerable State economy is effected by this experiment, since the chronic case is not allowed to slip back and his subsequent period of stay in hospital is materially shortened.

An extramural medical resident was appointed with requisite nursing and social worker auxiliaries, and his duties were to follow up all cases discharged from hospital. In addition to the economic saving effected and the obvious benefit to the patient from a proper continuity of medical treatment, the teaching of the students was much enhanced by the chance afforded of following into their own homes the patients they had studied in hospital. Of all patients admitted to the medical wards of the hospital 84.1% were suffering from chronic disease, and about one-third of these had chronic degenerative cardiovascular disease. The resident extramural medical officer worked in close conjunction with the patient's private doctor when such existed. It was found that only 59.3% discharged to such a practitioner ever reported to him, and only 23.2% of those discharged to the free dispensary ever got there until the follow-up was instituted.

It is obvious that such a service is very necessary when there is poor liaison between the hospital and the practitioners of the district who use the hospital, or where the hospital is not acting in a consultative capacity so that the patient short-circuits his own doctor; but if all "played the game according to the rules" such a service should not be needed except perhaps from the statistical scientific standpoint of a personal follow-up of the results of hospital treatment. Even this, however, should not be necessary in a well-regulated and closely knit medical service.

ARTIFICIAL PNEUMOTHORAX

Artificial Pneumothorax in Pulmonary Tuberculosis. By T. G. Heaton, M.B. With an Introduction by Dr. C. D. Parfitt. (Pp. 217.) Canada: The Macmillan Company of Canada, Ltd.

In the first part of this book the author sets out the history of pneumothorax treatment, and follows this with a study of intrathoracic dynamics, the pathology and physiology of the collapsed lung, and, finally, the complications of artificial pneumothorax therapy. The information contained in these chapters is most useful, and they will be of interest to all who are engaged in treating pulmonary tuberculosis. The author has spent much time in searching the literature, and has collected valuable statistics on such subjects as the incidence of complications and the results of treatment. It is a pity, however, that most of the references quoted are at least ten years old.

The second part of the book, dealing with the indications for treatment and the technique and management of artificial pneumothorax, does not attain the same standard as the early chapters. The subject is controversial, and it would be difficult to please everyone, but this book does not give enough detailed instruction to help a novice faced with the practical problems which constantly occur in pneumothorax treatment. For instance, the management of effusions and empyema is dismissed in three short paragraphs, and it is doubtful whether the author's enthusiasm for oleothorax will be shared in this country. He also fails to point some of the morals which may be drawn from the collected statistics, so well presented in the earlier chapters: the clear demonstration that persistent adhesions carry a bad prognosis, and that such adhesions are present in more than 40% of cases, does not tally with the subsequent statement that not more than 3% of patients with pneumothorax will require adhesion section.

Of the more modern methods of treatment, extrapleural pneumothorax gets only the briefest mention, while pneumoperitoneum is described merely as a rare complication of pneumothorax. In conclusion, it is impossible not to comment on the statement that "it is possible to manage a pneumothorax fairly well without *x*-ray control": surely this is putting the clock back twenty years at least?

ORGANIC CHEMISTRY

Principles of Organic Chemistry. By Sylvanus J. Smith, M.A. (Pp. 569. 15s.) London: Macmillan and Co. 1944.

This new book on organic chemistry gives an introduction to the subject in an acceptable form. It is intended for the student who requires a manual that will serve him adequately during his three-years academical course. In this aim the author has fulfilled every reasonable expectation. Using a method which is the result of a gifted teacher's study he conveys the greatest measure of information in the smallest compass without incurring the risk of oversight on the part of the reader and without the ambiguity that may attend a paucity of words.

Chemical reactions and reactivities form the foundation of organic chemistry, and the book quite properly gives to these the chief prominence. The description of physical and other properties of substances, with remarks on their economic or industrial importance and other general information, is aptly included in the general text. A particular feature of value consists in the copious references to other pages on which is to be found supplementary information relating to the matter under consideration. Very helpful too is the revision exercise appended to every chapter. The revision exercise includes questions and problems the solutions to which are provided at the end of the book. The scheme of nomenclature applied to organic compounds is also fully explained, and the more recent development of theory connecting chemical properties with electronic arrangement is adequately treated. The book is a very serviceable students' manual and is also good as a general work of reference.

Notes on Books

Pye's Surgical Handicraft, a favourite with house-surgeons and junior practitioners for 60 years, has reached its 14th edition. Mr. HAMILTON BAILEY is responsible for the book, as he has been since he succeeded the late H. W. Carson as editor in 1938. There are many new pictures, and Mr. Bailey and his team of 45 collaborators have earned the gratitude of a new generation of readers for keeping this manual not only alive but in very good form. The publishers are still John Wright and Sons, Ltd., and the price is 25s.

The Board of Registration of Medical Auxiliaries has published the first *Register of Dietitians*, which contains the names of some 140 members of the British Dietetic Association. Dietetics is defined therein as the interpretation and application of the scientific principles of nutrition in health and disease. Registered dietitians, however, have agreed in cases of disease not to undertake the dietetic treatment of any condition except under the direction and control of a registered medical practitioner. The names are arranged in geographical order and then regrouped in an alphabetical list, followed by a special list of hospitals, etc., employing dietitians. Copies of the *Register* can be had free on application to the Secretary, Board of Registration of Medical Auxiliaries, B.M.A. House, Tavistock Square, London, W.C.1.

Nearly a dozen years ago Dr. JOSEPH GARLAND of Boston wrote a charming and instructive book on *The Youngest of the Family*, which he has now revised (Oxford University Press; 11s. 6d.). It is a sound guide to be put in the hands of a mother or expectant mother, and medical practitioners could also read it with benefit, for it is full of facts, attractively presented and linked by common sense. At a time when "popular" books on babies seem to be the fashion this volume of Dr. Garland's could well serve as a model.

The National Association for the Prevention of Tuberculosis has issued four new leaflets which in form and material are a departure from what has been done in this way before. The titles are *Learning to Live*, a word of encouragement for the tuberculous patient; *Good Luck*, a practical guide for the ex-sanatorium patient: *Childhood Tuberculosis*, a word for the health visitor; and *Dust Diseases: Their Cause and Care*, giving the essential facts for all connected with the dust-producing industries. Specimen copies of these leaflets can be had, free, from the N.A.P.T., Tavistock House North, Tavistock Square, W.C.1.

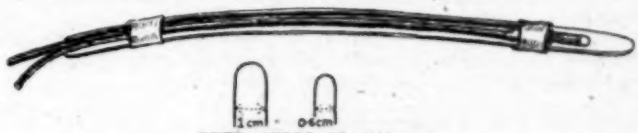
Preparations and Appliances

ILLUMINATED RETRACTOR FOR PENETRATING MISSILE WOUNDS OF THE BRAIN

Captain F. J. GILLINGHAM, M.B., B.S., R.A.M.C., writes from a neurosurgical unit in Italy:

The problem of careful and complete débridement of penetrating missile wounds of the brain is that of visualizing all dead tissue and indriven foreign matter within the track. If inadequate surgery is carried out, resulting in incomplete removal of bone fragments and of necrotic brain tissue, the nidus for early or late abscess formation remains.

The present methods of débridement—removal of bone fragments with forceps, irrigation, partial visualization by means of suction and good spot-lighting—may tend to leave one only too often in doubt as to the complete success of the operation. Missile tracks occur at many angles and defeat the best of lighting (spot-lights, and cumbersome headlights or mirrors). To meet this problem a malleable illuminated brain retractor was improvised and later perfected. It had to be of such small dimensions that even small wounds could be explored easily, under direct vision, and without further destroying valuable brain tissue. Simple construction, reliability and facility in use, and ease of sterilization were the essentials. The diagram illustrates the retractor that is being used with considerable satisfaction and success.



RETRACTORS 8" LONG

By means of thin rubber bands it can be changed quickly from a smaller to a larger retractor, as is required. A small rubber catheter (size 4) is often attached with the light to provide suction as well as lighting. This removes any blood or fluid debris, visibility is increased, and a hand is freed which can be usefully employed removing bone fragments, etc. The instrument is easily sterilized in antiseptic fluid or by boiling, and can be cleaned without difficulty.

A number of cases have been dealt with by this method, and results are gratifying. In a series of 30 consecutive brain wounds operated on in the forward area post-operative check *x*-rays revealed no remaining bone fragments in 29 cases; and in two cases deep-seated metal foreign bodies which previously would probably have been left were removed without difficulty.

Straightforward penetrating brain wounds can be sucked quite clean of all debris, often to their complete depth, unless across the midline. Bone fragments are easy to find once the necrotic brain and blood clot are sucked away. They are seen as white broken bone fragments, tiny and large, and often covered in part by necrotic brain or a few hairs. Gradually the normal brain forming the walls and depth of the track is seen, and all tags of dead brain sucked away until at last the track is seen to be quite clean. It is practically never necessary to enlarge the dural opening.

Abscesses presenting on the surface can be evacuated completely and explored to their depths. The collapsed lobulated walls fall together and prevent the insertion of a tube to the bottom, but direct vision makes this a simple procedure. Orbital wounds involving the globe and the temporal or frontal lobes of the brain are often subjected to inadequate débridement owing to the difficulties of exposure, but a track in the temporal lobe explored through the orbit was thoroughly cleared of its necrotic brain, indriven bone, and metal foreign body without difficulty. Ventricular wounds with metal foreign bodies in the walls of the ventricle can be cleaned out and the foreign bodies removed.

It is early yet to say whether there will be any diminution in the abscess rate in this series.

I owe my gratitude to R.E.M.E. in this theatre of war, and particularly to Lieut. Ward, R.A.S.C., for their enthusiasm and help in constructing the instrument. I am also indebted to Brig. Hugh Cairns, Consultant Neurosurgeon, for his encouragement and advice.

FUTURE OF ROYAL SOCIETY OF MEDICINE

Appeal for Building Fund

The house of the Royal Society of Medicine at the south-east corner of Wimpole Street was considered palatial when it was opened by King George V in 1912. The Society since those days has trebled its membership and multiplied its services, and the number of its sections has risen to twenty-four. At many meetings, even during the wartime dispersion, its larger hall has been crowded out, and other rooms fully taxed. The larger of the two meeting rooms holds only 350.

A recent special meeting of Fellows unanimously decided to open a building fund of £50,000 for the enlargement and re-equipment of the house to meet present and future requirements. The recommended alterations will provide a new top floor to contain a large room fully equipped for the examination of clinical cases. A third meeting room is also proposed, as well as new common-room and committee-room accommodation. These developments, of course, will not be possible until there is a large release of labour, but it is hoped that the fund may reach workable proportions even before reconstruction is begun.

The Society now serves its membership in ways not dreamed of thirty years ago, when its *Proceedings* was the only means of contact with those of its members who did not live in the Harley Street neighbourhood. It has been quick to take advantage of the photostat, the microfilm, and the precision enlarger, so that instead of the student having to visit the library, the material he is in need of goes to him. The microfilm, which has proved of immense value in the recording of documents, has been taken up by the Society, and eleven "film readers" have been lent to the medical branches of H.M. Forces over-seas and two to the American medical Forces, so that medical officers on any of the war fronts have an opportunity of keeping abreast of medical literature. The microfilm is more convenient than the photostat, but the photostat is most useful where there is no access to a "film reader," and this is to be augmented by a special camera which will serve for making book records.

Another development in which the Society has taken part, in co-operation with the Scientific Film Association and other bodies, is the establishment of a library of medical films.

MEDICAL SERVICE CONDITIONS IN TRINIDAD

The Legislative Council of Trinidad and Tobago has passed a resolution for the appointment of a committee to review the medical and health policy of the colony and to consider the reorganization of the health services. Mr. Gerald Wight, member for Port of Spain, in proposing the resolution, traced the past history of medical services and outlined the causes of present dissatisfaction. In his view no satisfactory service could emerge so long as the administration was on a purely Civil Service pattern, which in medical affairs meant an undesirable dictatorship. In Trinidad, he said, the authority in medical and health matters was concentrated in the Colonial Secretary, and below him in the Director of Medical Services. Out of 47 recommendations made by a Medical Reorganization Committee in 1934, only 22 had been completely implemented. An advisory council to the Surgeon-General was proposed and was actually set up in 1935, only to be abolished in the following year. Effect had not been given to recommendations for the enlargement of hospitals and the establishment of out-patient departments and for the making of staff appointments. Proposals for the establishment of blood transfusion centres, for the treatment of paying patients at general hospitals by private practitioners, for the appointment of part-time practitioners to carry out all forms of district work, and for the restaffing of district hospitals had not been carried out. Dissatisfaction in the service was such that there had been a number of resignations of medical and nursing staff. Mr. Wight also complained that Government policy concerning health insurance was short-sighted and ill conceived, as was illustrated by the appointment of an insurance committee without a single general practitioner among its members. Nothing had been done to implement the recommendations of the Royal Commission for better facilities for medical treatment in rural areas. Another member said that the district hospitals were small useless buildings, that there were no hospitals for infectious diseases, that patients with pneumonia had to be treated at home, and cases of diphtheria and poliomyelitis were treated in the ordinary wards of hospitals. The staff at the two general hospitals, San Fernando and Port of Spain, were said to be overworked. A reply was made by Mr. dos Santos, Acting Colonial Secretary, who pointed out that the expenditure on medical services had increased from 733,000 dollars in 1934 to over two million dollars in the present year's provision. He pleaded that owing to the war it had been difficult to obtain hospital personnel and equipment. Plans for a sanatorium were under consideration. Arrangements for clinics had been reviewed year after year and readjusted to meet the needs of the population. Trinidad and Jamaica had the highest salary scales for medical officers in the West Indies, but the smaller colonies could not afford to pay the same scales, and there must be a levelling of salaries in any unified service. Another supporter of the administration pointed out that the death rate in Trinidad, which was 27.5 at the beginning of the century, had fallen to 17.5 by 1932, though since then it had remained stationary. It was announced on behalf of the Government that while it accepted the resolution the committee could not be appointed until a qualified person from abroad was available to act as its chairman.

Nova et Vetera

MEDICAL LICENCES IN THE 16th AND 17th CENTURIES

In these days of Governmental proposals to regiment the doctors for the benefit of the State, it is interesting to learn in John H. Raach's "English Medical Licensing in the Early Seventeenth Century"[1] that in 1421 the profession itself petitioned for some measure of State control and definition of its duties. The lack of a corporate spirit in medicine in the Middle Ages, as compared with the elaborate organization of the crafts with their guilds, and the stable edifices of the Church and the Law, made some such step sooner or later inevitable. The petition, which is here for the first time published, had but little effect, and in the early years of the reign of Henry VIII the State took the initiative and passed two effective statutes. The first of these (1511) placed the regulation of the profession, both in London and throughout the country, in the hands of the bishops, while the second (1522) was concerned with London and the surrounding districts. The article is concerned mainly with the first of these statutes.

The power of the Church in medical licensing (and it retained this authority, in theory at least, until the creation of the General Medical Council in 1858) may seem anomalous, but the author goes to some pains to justify the choice of the bishops, and makes a good case for their stewardship. In an attempt to rid the country of quacks the Tudor Government, as was its wont, made use of an established institution; and its choice of the Church for this work was by no means unhappy. The two universities retained their licensing powers, and although the soon-to-be-incorporated College of Physicians quickly obtained a monopoly of licensing in London, its attempts to replace the bishops as a licensing body in the country never became effective. The Church was, in practice, by far the most important licensing authority, and two-thirds of the licensed doctors in the early seventeenth century received their licences at its hands. The bishops were advised by a committee of "expert persons," usually local physicians, who could, after examination, testify to the candidate's ability. Stress was laid by the examiners upon knowledge rather than qualifications, and licensees with medical degrees seem to have been in the minority. The area in which the ecclesiastical licence was valid was circumscribed and may have depended upon the fee paid, whereas a university licence cost more and permitted practice anywhere in England.

This informative and well-documented study reveals the early consciousness of the Government of some responsibility for the public health and its attempt to legislate for it in the statute of 1511, which resulted on the whole in an efficient system of medical supervision in England. Medical licensing occupies a small but important niche in English social history, and well deserves this careful elucidation of its early evolution.

G. O. M.

[1] *Yale J. Biol. Med.*, 1944, **16**, 267.

H. Dermon and E. W. Le Hew (*Amer. J. med. Sci.*, 1944, **208**, 240) record an epidemic of 129 cases of mumps in a small Tank force. The total days lost by hospitalization were 2,657, which, though a large figure, agrees with previous experience with mumps in the army. There was an evident correlation between inclement weather and crowded living conditions and the incidence of mumps. Thirty-five per cent. developed orchitis. Leukopenia with relative lymphocytosis was present in most cases. Sulphathiazole was given to eight patients without affecting the course of the disease.

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ALUMINIUM DUST FOR SILICOSIS

Assuming that silica exerts its injurious effect upon animal tissue through a slow transformation into silicic acid, Denny, Robson, and Irwin[1 2 3] thought that if the solubility of siliceous material retained in the lungs could be sufficiently reduced the usual fibrotic response could be diminished or prevented. They discovered that aluminium powder rendered siliceous material insoluble *in vitro* by coating the silica particle with a thin film of gelatinous hydrated alumina, which on drying formed crystalline alpha aluminium monohydrate. The presence of this adsorbed layer on the surface of the quartz was shown by staining it with aurin. That metallic aluminium dust produced no fibrosis in the lungs was demonstrated by dust-inhalation experiments on eight rabbits. Attempts were therefore made to prevent silicosis by mixing quartz with metallic aluminium dust. Animals exposed to quartz dust developed typical silicosis in about 5 months, but the addition of 1% aluminium powder prevented this even after exposure had been lengthened up to 22 months provided the aluminium powder was of a particle size below 5 μ. This year Crombie, Blaisdell, and MacPherson[4] have reported the treatment of 34 silicotic miners by the daily inhalation of fine aluminium powder freshly ground from small aluminium pellets in a specially constructed mill. Daily treatment began with five-minute inhalations, which were gradually increased to 30 minutes. Some of the men received 300 treatments, but the majority only 200. Out of the 34 cases thus treated clinical improvement in 19 was manifested by lessening or disappearance of shortness of breath, of cough, of pain in the chest, and of fatigue. In 15 cases the condition became stationary and remained so in spite of continuous employment in silica dust throughout the treatment The progress of the disease was assessed by means of tests for respiratory function repeated at three-monthly intervals. Obviously this treatment cannot be regarded as a cure for silicosis, since it cannot restore lung tissue which has undergone fibrotic change; but Crombie and his colleagues believe that the inhalation of finely particulate aluminium powder offers every prospect of preventing the development of human silicosis.

In view of these findings it is surprising that repeated papers by Goralewski[5 6 7 8 9] from Germany describe various types of lung disease attributed to aluminium dust and press for them to be scheduled under the Workmen's Compensation Act in that country. Seven hundred workers were investigated. They were making, probably by a stamping process, aluminium powder containing about 4 milliards of particles of dust per grain, and are reported as complaining of dry cough with pain on breathing, shortness of breath, poor appetite, and gnawing abdominal pain. Spontaneous pneumothorax developed in four workers. No abnormal physical signs are described. Blood counts showed a relative lymphocytosis with an eosinophilia up to 10%. The sedimentation rate was within normal limits in 78% of the cases, but the vital capacity was decreased in 27 instances. Radiographs showed focal shadows in the apical region with an increase of normal bronchial markings in the upper and middle thirds of the lung, giving a reticular appearance which at a later stage tended to increase and become confluent. The development of the illness was rapid and appeared to bear no relation to the length of exposure to aluminium. Histological examination of the lung of one patient who died revealed coarse, branching, hyaline, collagenous fibres, which enclosed phagocytes containing fine and coarsely granular particles distinguished by their jagged outline from carbon particles. Jäger and Jäger[10] suggested that, while aluminium powder is highly resistant to aerial oxidation, it is freely soluble in sodium chloride solution, giving sodium aluminate and aluminium chloride in equilibrium. A colloidal aluminium hydroxide complex results if the sodium and chloride ions are allowed to diffuse away, and if protein is also present it is co-precipitated round the partly dissolved aluminium particles. Jäger and Jäger think it is this complex which causes the lung changes. Koelsch,[11] however, believes that mechanical factors were responsible and that the disease is a consequence of the unsatisfactory ventilation of workrooms resulting from the black-out.

Aluminium powder is used in incendiary mixtures and in paints and inks. It can be made by two processes: either it can be blown, when the particles will be covered with a thin film of alumina; or it can be stamped, when they are covered with a thin film of stearine. Crombie, Blaisdell, and MacPherson[4] investigated 125 workers employed in the Pittsburgh stamp mills of the Aluminium Company of America. The workers here had been exposed to aluminium dust for periods ranging from 6 to 23 years; their health was found to be better than that of the 3,000 other workers employed in the plant. *X*-ray films of the chests of all the men taken each year for three years showed no abnormalities which could be attributed to the inhalation of dust. In the current number of the *British Journal of Industrial Medicine* Donald Hunter and his colleagues[12] report an investigation into the effect of aluminium and alumina on the lungs of grinders of duralumin aeroplane propellers. The workers were exposed to a mixture of aluminium dust arising from the propeller and alumina from the alundum grinding wheels. The average concentration of aluminium dust close to the operator's mouth was found to be 3 mg. per cubic metre of air, of which the

1 *Canad. med. Ass. J.*, 1937, **37**, 1
2 Ibid., 1939, **40**, 213.
3 *Indust. Med.*, 1939, **8**, 133.
4 *Canad. med. Ass. J.*, 1944, **50**, 318.
5 *Arch. Gewerbepath. Hyg.*, 1939, **9**, 676.
6 Ibid., 1940, **10**, 384.
7 Ibid., 1941, **11**, 106.
8 *Dtsch. Tuberkbl.*, 1943, **17**, 3.
9 *Arch. Gewerbepath. Hyg.*, 1943, **13**, 102.
10 *Arch. Gewerbepath. Hyg.*, 1941, **11**, 117.
11 *Beitr. klin. Tuberk.*, 1942, **97**, 688.
12 *Brit. J. Indust. Med.*, 1944, **1**, 159.

particle size in 1 mg. was between 2 and 7 μ, the remaining 2 mg. consisting of larger particles. The alumina particles were mostly of less than 1 μ diameter. The health of these workers, as shown by the number of sicknesses during the preceding year, was better than that of those in a machine shop belonging to the same company. None gave any history of spontaneous pneumothorax, and no abnormality was found in their blood counts. Radiographs of 92 workers showed no evidence of lung disease which could be attributed to aluminium. Observations at factories where aluminium powder is made by the blowing process do not suggest that workers there suffer from a high incidence of pulmonary disease. The recent findings in Germany therefore remain a mystery; but reliable investigations in this country and in Canada and the U.S.A. now show that aluminium dust has no injurious effect on the lungs.

HOMOLOGOUS SERUM JAUNDICE

Jaundice is one of the few diseases which have shown an increased incidence during the present war. Epidemics of what used to be called "catarrhal jaundice," but which from recent pathological work is more correctly termed "infective hepatitis," have been common in both civil and Service communities. Among the former the epidemiological pattern has for the most part been that of a droplet-spread infection with a three to five weeks' incubation period,[1] but in the Services[2] the disease has displayed some unusual epidemiological features. Besides this epidemic infective hepatitis, jaundice has occurred as a sequel to injection of pooled human serum such as is used in yellow fever vaccine or for protection against measles and mumps or in transfusion.[3] The rarity of jaundice after transfusions of whole blood or even pooled plasma and serum may be related to the so-called "dilution phenomenon," whereby neutral mixtures of virus and immune serum become reactivated when diluted.[4] Thus a hypothetical icterogenic virus would be held in check by the large doses of antibody given in transfusions, but would be liberated after injection of the very small doses of hepatotoxic serum which produces jaundice. Jaundice among patients under arsenical treatment for syphilis has long been regarded as evidence of toxicity of the drug, but recent work indicates that this form of jaundice is also due to the transfer of some noxious substance from the blood of one patient to another owing to improper sterilization of syringes and needles used for the intravenous injections.[5] Both this post-arsphenamine jaundice and the homologous serum jaundice have a long incubation period of two to four months, but are accompanied by liver damage indistinguishable in kind and severity from that which occurs with infective hepatitis.[6,7] Apart from the incubation period, the main point which distinguishes infective hepatitis from homologous serum jaundice—a term we may conveniently use to include both the pooled serum and the post-arsphenamine jaundice—is the apparent lack of infectivity of the latter disease. In addition Hawley and his colleagues,[8] in describing an outbreak of jaundice after use of convalescent mumps serum, have drawn attention to the greater incidence of certain clinical phenomena—e.g., arthralgia, skin rashes of allergic (urticarial) type, and enlarged liver and spleen—among patients with homologous serum jaundice. Persistent vomiting was more common in the infective hepatitis series.

The problem which still remains unsolved is the relation of infective hepatitis to homologous serum jaundice. Are they one and the same? So far attempts to isolate a virus from either type of disease by inoculation of material—whole blood, bile, nasopharyngeal washings, liver and spleen from fatal cases—into a wide variety of experimental animals have been wholly unsuccessful. Attempts to infect human volunteers by injection of blood from patients with infective hepatitis[9] or by nasal instillation of nasopharyngeal washings from cases of homologous serum jaundice[10] have been rather more successful. Interesting data on the infectivity of serum from patients with homologous serum jaundice or of pooled serum that was known to be icterogenic have lately been provided by both American and British workers.[11,12] Thus an injection of 0.1 to 0.5 c.cm. of an icterogenic serum produces the hepatitic syndrome in varying degrees of severity in 30 to 40% of volunteers. The active principle is filtrable; it survives drying *in vacuo* for more than a year and storage at 4° C. for long periods; it resists heating for one hour at 56° C., but may be neutralized by ultra-violet irradiation. There is even evidence that it may be capable of multiplying in tissue culture. It is present in the blood during the pre-icteric and icteric stages of the disease, but disappears after two months. But, again, it may be present in pooled serum from individuals who at no time showed any symptoms suggestive of infective hepatitis.[13] Sheehan[14] has discussed the possibility that infective hepatitis is transmitted by a biting insect, and this new point of view may explain some anomalous findings in the epidemiology of the disease among troops in the Middle East. He suggests that infective hepatitis and homologous serum jaundice are due to the same agent, presumably a virus, and that the incubation period in both may be around three months. Epidemiological evidence about infective hepatitis does not support this argument, nor is it easy to reconcile it with the apparent lack of immunity to infective hepatitis which victims of homologous serum jaundice show, although Findlay and others[15] have lately brought forward fresh evidence about cross-immunity which leads them to believe in a common antigenicity. For the final answer we must await the discovery of the causal agent of one or both diseases.

1 *British Medical Journal*, 1943, **2**, 680.
2 See review by Witts, L. J., ibid., 1944, **1**, 739.
3 Bradley, W. H., Loutit, J. F., and Maunsell, Kate, ibid., 1944, **2**, 268.
4 Andrews, C. H., *J. Path. Bact.*, 1928, **31**, 671.
5 Salaman, M. H., King, A. J., Williams, D. I., and Nicol, C. S., *Lancet*, 1944, **2**, 7.
6 Dible, J. H., McMichael, J., and Sherlock, S. P. V., ibid., 1943, **2**, 402.
7 Beattie, J., and Marshall, J., *British Medical Journal*, 1944, **1**, 547.
8 *Lancet*, 1944, **1**, 818.
9 Cameron, J. D. S., *Quart. J. Med.*, 1943, **12**, 139.
10 Findlay, G. M., and Martin, N. H., *Lancet*, 1943, **1**, 678.
11 Oliphant, J. W., Gilliam, A. G., and Larson, C. L., *Publ. Hlth. Rep. Wash.*, 1943, **58**, 1233.
12 MacCallum, F. O., and Bauer, D. J., *Lancet*, 1944, **1**, 622.
13 McFarlan, A. M. and Chesney, G., ibid., 1944, **1**, 816.
14 Sheehan, H. L., ibid., 1944, **2**, 8.
15 *Lancet*, 1944, **2**, 365.

THE END OF PATULIN

Most of us would be more grateful for a real cold cure than for many a therapeutic discovery in connexion with more serious diseases: hence the sensation a year ago when it was announced[1] that a substance extracted from cultures of *Penicillium patulum* Bainier had proved its worth for this purpose in what appeared to be an adequate field trial. Patulin belongs to a class of antibacterial substances formed by moulds which differ from penicillin in having a lower order but a wider range of antibacterial activity and a considerable degree of toxicity. As was pointed out in these columns,[2] the toxicity of patulin, and the narrow margin between the concentration used for nasal spraying and the minimum required for bacteriostatic action, made it difficult to account for therapeutic effect on a simple antiseptic basis, even assuming that any action on ordinary bacteria will influence the early stages of a cold. The original report was followed shortly by the account[3] of another field trial with negative results, and since these conflicting findings derived respectively from the Navy and the Army we were left for the time being to speculate on possible differences in the nasal flora of the two Services.

Patulin is much easier to make than penicillin, and adequate supplies were evidently soon forthcoming for further trials. Two accounts of further work which have now appeared are wholly discouraging, and it must be concluded that patulin has not the action originally claimed for it. J. M. Stansfeld, A. E. Francis, and C. H. Stuart-Harris[4] have made both a laboratory and a clinical study of its properties, the former including observations on its toxicity and a demonstration of its failure to influence infection by either influenza virus A or *Bact. typhosum* (an organism fully sensitive to it) in mice. Their clinical trial was conducted on the same lines as that on a much larger scale described in a succeeding paper[5] by the Patulin Clinical Trials Committee of the Medical Research Council. The subjects were respectively 100 soldiers and 1,348 office and factory employees and public-school boys. Half the cases in each series were treated with patulin in phosphate buffer solution and half with buffer solution alone, the nature of the solutions being unknown not only to the patient but even to those responsible for administering it and observing the effects. Various methods of application were used, including precisely that of the original naval trials, and one which appears to be an improvement on it —instillation in the head-low position. Ample precautions were taken to ensure and to demonstrate the activity of the preparations used. The proportion of patients relieved at different stages or professing that the treatment had been of benefit to them is almost identical in the test and control series of both studies. All the authors are at one in testifying to the difficulty of assessing therapeutic effect in a condition of which the manifestations are largely subjective. How, despite this difficulty, to explain the conflicting results of the original and subsequent trials remains a problem which no one can positively solve on the basis of published information. There seems to be no further need to study patulin for its own sake, but if further study could throw any light on this discrepancy it might expunge a disturbing question-mark from our records of this form of investigation.

[1] *Lancet*, 1943, **2**, 625.
[2] *British Medical Journal*, 1943, **2**, 683.
[3] *Lancet*, 1943, **2**, 684.
[4] Ibid., 1944, **2**, 370.
[5] Ibid., p. 373.

A LISTER MEMORIAL LECTURE

The first Lister Memorial Lecture of the Society of Chemical Industry will be given by Sir Alexander Fleming, F.R.S., in the Anatomy Lecture Theatre of Edinburgh University on Thursday, Nov. 9, at 5.30 p.m. The subject of his address is "Antiseptics," and the chair will be taken by Sir John Fraser, Principal of the University. Under the auspices of the Society of Chemical Industry endowed memorial lectures have recently been founded in different parts of the country to perpetuate the memory of scientists and industrialists whose work has assisted in building up our great chemical industry. The name of Lord Lister has been chosen for commemoration in the Edinburgh and East of Scotland Section of the Society on account of his connexion with Edinburgh and because of the stimulating effect his revolutionary medical methods had on the growth of the fine chemical industry in that country. The endowment has been the gift of two Edinburgh pharmaceutical chemical manufacturers, J. F. Macfarlan and Co. and T. and H. Smith, Ltd. The lecture will be delivered every four or five years in Edinburgh, Aberdeen, or St. Andrews.

PRENATAL DIET AND THE INFANT

Much of the recent field work in nutrition recalls the retort of the professor in Bernard Shaw's *Black Girl*: "The fact was known, of course, to every child; but it has never been proved experimentally in the laboratory; and therefore it was not scientifically known at all. It reached me as an unskilled conjecture: I handed it on as science." It is accepted by the layman that a high nutritional standard during pregnancy is necessary for both mother and child. The reports of Ebbs, Tisdall, and Scott[1] and of the People's League of Health,[2] which produced evidence of the beneficial effect on the mother of supplementary feeding, have received a good deal of criticism. Nevertheless, the results cannot be entirely discounted, and it must be accepted that diet is an important factor affecting maternal health. As regards the effect of the maternal diet on the infant, the position is still more interesting. There must be few mothers who do not believe that what they eat profoundly affects their unborn child. Scientific opinion, however, has tended to minimize the effect of prenatal diet on the infant, and the general opinion at the Nutrition Society's meeting[3] in February, 1943, was that the child was unaffected except by gross deficiencies in the mother's diet. Nevertheless, Ebbs, Tisdall, and Scott showed that dietary supplements to the mother appreciably lowered the incidence of illness in infants up to 6 months of age. For example, 31% of the infants of mothers on ordinary diets suffered from some respiratory affection, compared with 8% of the infants of the mothers on supplemented diets. Similarly, 25% of the former were anaemic, compared with 10% of the latter. In addition to this experimental type of evidence a recent study[4] has been reported of the "field" type, in which the health of infants in the first two weeks of life has been correlated with the ordinary diet of the mothers. The infants were placed in four groups depending on their physical condition—superior, good, fair, and poorest. The diets of the mothers were classified into three groups—good or excellent, fair, and poor to very poor. The correlation between the physical condition of the infant and the prenatal diet was very high. For example, of the superior children, 56% were of mothers whose diet was good or excellent, and 9% of

[1] *J. Nutrit.*, 1941, **22**, 515. See also *British Medical Journal*, 1943, **1**, 16, and correspondence, *British Medical Journal*, 1943, **1**, 144, 204, 231, 268, 301, 363, 460.
[2] People's League of Health Interim Report, 1942, *Lancet*, **2**, 10.
[3] *British Medical Journal*, 1943, **1**, 297.
[4] Burke, B. S., *et. al.*, *J. Nutrit.*, 1943, **26**, 569.

mothers whose diet was poor to very poor. Of the poorest children the figures were 3% and 79% respectively. Similarly, of the mothers whose diet was good or excellent, 94% of the infants were superior or good and 3% poorest; of mothers whose diet was poor to very poor the figures were 8% and 67%. Further, there was a close relation between the prenatal diets and the height and weight of the infants at birth. Infants from mothers on good or excellent diets were 51.8 cm. and 8.5 lb. at birth; infants from mothers on poor to very poor diets were 47.2 cm. and 5.8 lb. All the stillborn infants, all but one of those who died within a few days, and all the premature infants were born to mothers whose diets during pregnancy were very inadequate.

One would like to see many more such studies, covering many more individuals, and observed for much longer periods; for the importance of these observations cannot by over-emphasized if "positive health" is to be more than a new slogan for politicians.

PLASTIC SURGERY IN WAR

The war of 1914–18 saw the birth of plastic surgery as a specialty, and in those years the foundations for further advance were laid. The relatively short interval of peace enabled the lessons learned to be applied to the treatment of injuries and deformities arising from accident, disease, and congenital defect. Improvements in technique and advances in knowledge altered the prognosis of many conditions, and the scope of the specialty gradually increased to embrace most soft-tissue deformities or losses. With the onset of this war there was created within both the E.M.S. and the Ministry of Pensions a service designed to deal with civilian and battle casualties. Units staffed by plastic surgeons and their dental colleagues were established throughout the country. During the first few months they continued to draw their patients from hospital waiting-lists, and in this time the opportunity was taken to co-operate in the training of personnel for service in our own Navy, Army, and Air Force, as well as those of some of the Dominions. Dunkirk, the Battle of Britain, and the subsequent bombing of London and the larger cities brought casualties suffering from all types of soft-tissue injuries and burns. Some of the lessons of peacetime were found to have been based on faulty premisses, and that was particularly true of burns. The coagulation technique, which had been considered invaluable, was found to be fraught with serious dangers. There is so little in common between the lesion acquired by upsetting a kettle of boiling water and that inflicted by exposure to burning petrol fanned by a 300-m.p.h. gale that it is hardly reasonable to expect one method of treatment to be equally applicable to both. Indeed, it becomes increasingly obvious that any one method is not only inapplicable to all burns but is not even suitable for all phases of the treatment of any one burn. This is well illustrated in a recent symposium on plastic surgery,[1] and even here only a few aspects of the specialty have been considered. There is no indication of the problems of control of infection first by the sulphonamide drugs and now by penicillin. These have been or are being worked out. There is little indication of the amount of thought and labour devoted to the burned hand—to the question of restoring not only the skin but also the functions of muscle and joint. There seems to be little awareness of the advances in the treatment of fractures of the jaw. In spite of these omissions, it is of interest to note that the contributors to the symposium are concerned with the evaluation of different methods of treatment. This is a sign that the specialty has become mature and is no longer concerned with the elucidation of basic principles. These are already accepted; but it must not be thought that new and better applications do not remain to be found. A case in point is the recent modification of the process of free skin-grafting by the introduction of coagulum-contact methods. This represents not an entirely new development but an elaboration of technique which has the advantage of simplicity.

And so progress is made. In common with the other interdependent specialties, plastic surgery is meeting the needs of the moment in providing the resources necessary for the repair of battle and civilian casualties.

[1] *Surgery*, Jan., 1944, 15.

EDITORSHIP OF THE "LANCET"

The proprietors of the *Lancet* announce this week with much regret the retirement of Dr. Egbert Morland from the editorial chair. Dr. Morland joined the staff in 1915 and has been Editor since 1937. He is succeeded by Dr. T. F. Fox, with Dr. F. Clayton-Jones as assistant editor. As brother medical journalists we can appreciate better perhaps than others the skill and devotion with which Dr. Morland has served our profession through the columns of the *Lancet* during the past 29 years. His unremitting work for the advancement of medical science and practice, and for the maintenance of the traditions of medicine, has been done for the most part in the background, but both the Royal College of Physicians and the Royal College of Surgeons have recognized it publicly by admitting him to their Fellowship. The *Lancet* is fortunate in having Dr. Fox to succeed him, and we offer every good wish to the new Editor, who has already given long and valuable service to our contemporary.

KING'S FUND HOSPITAL MAPS

King Edward's Hospital Fund for London has prepared two large maps, one covering the Metropolitan Police District, and the other (in two sections, eastern and western) the Home Counties. Both maps are printed on the Ordnance Survey and thus show all roads, railway stations, etc. Voluntary hospitals are shown in red and municipal hospitals in blue, and the various sizes and types of each are denoted by different-shaped signs. No large-scale hospital maps of this kind have ever appeared before, and their publication is timely in view of the present emphasis on hospital p'anning. During the autumn the King's Fund hopes to make available to the medical profession and others interested in these matters a limited number of copies of the maps. Requests have already been received for over 300. Those who desire a copy should notify the secretary of the Fund at 10, Old Jewry, E.C.2. To enable those concerned with hospital planning to gain a more detailed knowledge of existing accommodation the King's Fund is also issuing a booklet which gives the addresses and bed complements, both E.M.S. and normal, of every hospital shown in each map. These booklets embrace mental hospitals, sanatoria, and public assistance institutions as well as general and special hospitals. The prices are 7s. 6d. for the Metropolitan Police District map and booklet, and 10s. for the Home Counties.

We regret to announce the death, at the age of 72, of Mr. Ernest W. Hey Groves, M.S., F.R.C.S., emeritus professor of surgery in the University of Bristol, and for many years surgeon to the Bristol General Hospital. He held many high positions in the Royal College of Surgeons of England, had been president of the Association of Surgeons of Great Britain and Ireland and of the British Orthopaedic Association, and edited the *British Journal of Surgery* from the time of its foundation.

STATEMENT ON DEMOBILIZATION BY THE CENTRAL MEDICAL WAR COMMITTEE

Some considerable time ago, at the request of the Ministry of Health, a special subcommittee of the Central Medical War Committee, known as the Demobilization Committee, was appointed to advise on the problems connected with the post-war release of medical practitioners serving with H.M. Forces. The Government had announced that the main considerations which would determine priority of release would be age and length of service, and the task of the committee was to consider what detailed procedures under this general plan would best combine justice to the serving doctors and satisfaction of the more urgent needs of the depleted civilian medical services. Most of the recommendations made by the committee were accepted by the Ministry of Health, though in some instances with modifications. The Government's proposals have now been published in a White Paper.[1] A brief account of the plan follows, with special reference to medical practitioners, whom the White Paper does not specifically mention.

SUMMARY OF GOVERNMENT'S PLAN

1. General demobilization must await the total defeat of the Axis Powers. All that is contemplated at present is the re-allocation of man-power between the Forces and civilian employment when Germany has been defeated and while the war with Japan is still in progress.

2. As there can be no break in the war effort military requirements will override all other considerations. The requisite control of civilian labour will be maintained, and compulsory recruitment for the Forces will be continued. At the same time it will be possible to "bring relief to the men who have served for long periods" and, through continued recruitment, to "enable more of them to return to their homes." This re-allocation of man-power will be "on a substantial scale," but "the rate of re-allocation must differ as between the three Services."

3. The plan provides for two separate methods of selecting men for return from the Forces. The larger group, designated Class A, will be selected for *release* according to age and length of service. In addition there will be a limited provision for the *transfer* from the Forces of men who are qualified for "urgent reconstruction work." This smaller group, designated Class B, will be required mainly to supplement the labour force available for building houses, but will include "a limited number of individual specialists, for whose transfer application may be made through Government Departments in accordance with existing arrangements." So far as doctors are concerned, the description "specialist" is not used here in its professional sense but is applicable to all medical officers.

4. Although the Services will make every effort to release men in their turn in accordance with the plan in whatever theatre of war they may be serving, no man will be released or transferred if his retention is considered necessary on military grounds; nor will any man be released or transferred if he prefers to volunteer for a further period of service. In short, there will be no compulsory return to civilian employment, but there may be compulsory retention in the Services of men due for such return, either in Class A or in Class B.

Class A

5. Within Class A there will be special priority for men of 50 years of age and over, who will be released before other men if they so wish. Otherwise, men in Class A will be released by release groups determined by a combination of age and length of war service on the basis that two months of service are equivalent to one additional year of age. For example, a man of 22 with four years' service will be in the same release group as a man of 40 with one year's service. "In general, war service means whole-time service in the armed Forces since the 3rd September, 1939, which counts for Service pay."

6. The release of men in Class A will begin as soon as practicable after the defeat of Germany, but there will necessarily be a pause to enable the Services to identify the men who are to be released first and to arrange for the return to this country of those who are over-seas. The number of releases in Class A will depend on the reduction that is found to be possible in the strength of the Forces and also on the number of new recruits called up.

7. To assist in resettlement, men in Class A will receive on release eight weeks' leave with full pay and certain allowances, and additional leave and pay will be given in respect of foreign service. When the period of leave has expired these men will be placed to a special class of Reserve, from which they would be recalled only in an extreme emergency. They will be able, on release, to exercise their right of reinstatement in their former civilian employment, and, while receiving regular Service payments, they will not be regarded by the Employment Exchanges as "subject to any powers of direction which are otherwise generally operative." The benefits received by men in Class A will be available also to men discharged on medical grounds. The present arrangements for release on compassionate grounds will be continued.

Class B

8. Transfers in Class B will be small in number in proportion to releases in Class A and will not begin until a start has been made with the release. The actual numbers for transfer will be determined from time to time by the immediate requirements of the "reconstruction employments" and the extent to which these requirements will be met by releases in Class A and by transfer from other civilian work. So far as possible, the selection of the required number of men from a particular occupational class for transfer in Class B will be based on the principle of age and length of war service.

9. Men transferred in Class B, since they will leave the Forces out of their turn, will not be entitled to the same benefits as those released in Class A. They will be given only three weeks' leave before being placed to the Reserve, and payments due in respect of foreign service will be held in suspense until after the end of the war. Men in Class B will be under direction and will be liable to be recalled to the Forces if they discontinue the civilian work for which they were transferred. If this is not the work in which they were formerly engaged, their reinstatement rights will be preserved.

10. A man will not be transferred in Class B against his wish if he prefers to await his turn for release in Class A. "Once, however, a man has been transferred in Class B he will not subsequently be eligible to apply for inclusion in Class A."

11. Both Class A men and Class B men may, immediately on release or transfer, apply for a pension for disablement due to war service. A scheme of war gratuities by way of reward for service will be announced later.

12. The general arrangements described above will apply to women as well as to men, "with the addition that married women will have priority over all others if they so desire."

Special Position of Medical Officers

As has been stated above, medical officers are not specifically mentioned in the White Paper. The general arrangements proposed will, of course, apply to them as to other members of the Forces. So far as Class B is concerned, they are within the category of "specialists" who will be transferred, not in groups, but individually on application made through a Government Department. In practice, the recommendations for transfer will be made by the Central Medical War Committee after consideration of applications submitted through the Local Medical War Committees, or, in appropriate cases in the London area, through the Committees of Reference. In short, the machinery set up for the recruitment of medical practitioners will "go into reverse" for the purpose of the re-allocation procedure.

The total number of transfers in Class B will be limited, and it is not to be expected that any particular group of "specialists" will be allowed a disproportionate share of such transfers. It is probable, therefore, that the strengthening of the hard-pressed civilian medical services will depend mainly on releases in Class A, and the question arises whether the

[1] Re-allocation of Man-power between the Armed Forces and Civilian Employment during any Interim Period between the Defeat of Germany and the Defeat of Japan. (Cmd. 6548.)

numbers of medical officers whom the Services will be able to release will be such as to meet the urgent civilian needs and to ensure equality of treatment in respect of release between medical officers and other members of the Forces.

It is clear that the requirements of the Services in respect of medical officers will continue to be heavy after the defeat of Germany, both because of the high incidence of sickness in the Far East and because the resources of the Emergency Medical Service will not be available here. Moreover, some considerable time may elapse after the fighting has ceased in Europe before medical officers can be made available in sufficient numbers for service in the Far Eastern theatre. It may well be, therefore, that the requirements of the Services at the end of the European war will be such as to make it impossible to allow the medical profession its proportionate share of releases in Class A under the general re-allocation scheme.

It appears that the number of releases of medical officers will be determined largely by the number of civilian practitioners available for recruitment, and this in turn will depend on the Government's decision as to the limit of age for continued recruitment after hostilities in Europe have ceased. On this matter the White Paper gives no definite information, but merely states that "in order to increase the releases in Class A and to compensate for the transfers in Class B, numbers of young men at present deferred, particularly in the munitions industries, will be called up for the Forces."

The Demobilization Committee recommended the continued recruitment of young medical practitioners who are within five years of qualification or are below the age of 28, and this recommendation was accepted by the Ministry of Health. But, in view of later information as to the probable needs of the Services, it now appears that the continued recruitment of doctors will be desirable up to a somewhat higher age, perhaps in the region of 35, even if this age should be above that fixed by the Government for recruitment generally. The Central Medical War Committee has decided to recommend accordingly through the Ministry of Health.

A special consideration which has influenced the committee is the impossibility of recruiting, from practitioners within five years of qualification, the specialists—the word is used here in its professional sense—who will be required to replace those who are due for release in Class A and those whose transfer in Class B will be recommended. Apart from this, it is clearly important that the practitioners available for recruitment should be sufficient in number to enable serving officers generally to be released in their turn under the Government's scheme in order that their future prospects in civilian practice may not be unfairly prejudiced.

The committee has in mind the fact that the needs of the medical schools and associated hospitals, both in respect of the teaching of undergraduates and in respect of the postgraduate instruction of medical officers returning from the Forces, will be likely to give rise to applications for Class B transfers. Every effort will be made to deal justly with such applications in the light of exact information to be obtained from the schools regarding their comparative needs, and with due regard to the fair distribution of the permitted number of Class B transfers among the various spheres of professional work.

Reference has been made to the postgraduate instruction of practitioners returning from the Forces. It may not be generally known that, some years ago, the British Medical Association foresaw this need and urged the Government to prepare suitable arrangements. The matter is now in the hands of the Central Medical War Committee, and discussions are proceeding with the Ministry of Health. The aim is to ensure not only that refresher courses and clinical appointments are available but also that appropriate financial arrangements are made in order that no man who is in need of professional rehabilitation, and no suitable candidate who wishes to continue his interrupted education with a view to specialization, will be unable to find the opportunity he seeks through lack of means.

L. N. Pearlman and R. G. Bell (*Arch. Pediat.*, 1944, **61**, 75) record a fatal case of *B. coli* meningitis in a male infant aged 1 month. The case was treated with sulphonamides but without spinal drainage.

Correspondence

Administration of Pitocin and Ergometrine during and after Labour

SIR,—Conflicting opinions are expressed by Drs. O'Meara and Gaskell (Sept. 9, p. 353; Oct. 14, p. 511) concerning the propriety of administering pituitary extract during labour. On this much-discussed subject a firmer stand can, I believe, now be taken (*J. Obstet. Gynaec. Brit. Emp.*, 1944, **51**, 247).

Careful clinical experiments led Burn and Bourne (1927) to the conclusion that two units of posterior pituitary extract given by intramuscular injection provide a useful means of stimulating a sluggish uterus without appreciable risk of foetal asphyxia or uterine rupture. The pros and cons have been more recently discussed at a symposium organized by the American Medical Association. There is no doubt that pituitary extract (like ergometrine) is highly dangerous if incautiously used. Nothing useful is gained by speeding normal labour; and to stimulate an already active uterus is certainly a rash venture ("A stream-lined labour," said DeLee, "is as safe as a stream-lined parachute!"). On the other hand, if the uterus is sluggish, if the head is low on the perineum, and if there is no mechanical hindrance to easy delivery—e.g., occipito-posterior position of the head—there is, I believe, good reason to give two units of the extract by intramuscular injection. For the next 15 minutes careful watch should be kept in order that excessive contractions—should they occur, which is unlikely—may be controlled by inhalations of chloroform. I have had no reason to regret this practice, and, like others, have found that it sometimes avoids the need of a forceps operation.

Ergometrine, on the other hand, should never be given before the birth of the head: for the foetus it is still the "pulvis ad mortem" that the parent drug was termed. But when labour is over it is safe; and it has, I believe, virtually banished the hot intra-uterine douche and other clumsy methods of controlling post-partum haemorrhage. To be fully effective in these urgent cases it must be correctly administered. Intravenous injection of 0.25 mg. (1/2 ampoule) gives excellent results. Injection into the uterus via the abdominal wall is even simpler and more effective. For the latter method there are three requisites: (1) the bladder must be empty; (2) the syringe and needle must be sterilized by boiling, and the needle should be of stainless steel to lessen any risk of snapping; (3) the uterus must be easily felt and capable of being manipulated to lie against the abdominal wall. The injection is made through an area of sterilized skin 2 in. below the umbilicus; 0.5 mg. (1 ampoule) should be given.

The administration of oxytocic drugs *before* the birth of the placenta has been much disputed, and personally I dislike the routine use of such methods. If, however, after half an hour or more the placenta cannot be expressed by Credé's manœuvre, and if the uterus is flabby, I have on many occasions injected 5 units of pitocin into the fundus as described above. In 45 seconds the fundus and body become firmly contracted; placental expression is then often successful, and the operation of manual removal thus avoided. If the placenta still refuses to come away, haemorrhage from the uterine cavity will at least be arrested; and half an hour later, when the effect of the pitocin is spent, manual removal may be more safely performed. Ergometrine may also be used; but because it is more persistent in action a later manual removal (if necessary) is likely to be a more difficult operation.

Recently, several American obstetricians have reported the routine use in more than 1,000 cases of an intravenous injection of 0.2 mg. of ergonovine (ergometrine) given simultaneously with the birth of the anterior shoulder of the foetus. The placenta quickly separates and follows almost at once after expulsion of the foetus. Post-partum haemorrhage is greatly lessened. By this method of administration it is claimed that the risk of incarceration of the placenta by uterine spasm is negligible. I can corroborate these statements, but believe that the method has inherent risks and should not be used outside hospital practice.—I am, etc.,

Radcliffe Infirmary, Oxford. CHASSAR MOIR.

Fracture of the Carpal Bones

SIR,—Your contributor H. A. Harris, in his article on fracture of the carpal bones (Sept. 16, p. 381), has raised a number of points concerning the paper which Wilkins and I wrote for the *Journal* of May 20, 1944.

He criticized our statement that more cases returned to full duty than were passed as having the fractured scaphoid united. We endeavoured to make it clear that, although most cases of ununited fracture of the scaphoid develop osteo-arthritis, in some the giving rise to symptoms may be long delayed. When one is dealing with large numbers of traumatic lesions it is by no means uncommon to come across an old fracture of the scaphoid of which the patient is unaware and which is giving rise to little or no disability. In these cases it is probable that there has been good fibrous union without distortion of the bone.

In giving the scope of the analysis we stated that the remaining fifty-eight cases were Colles's fractures only. Moreover, a concluding section briefly described those cases in which multiple carpal injuries had occurred. Dr. Harris's observations on the comparative and developmental anatomy of the scaphoid were very interesting. I feel certain that many of the so-called accessory and bipartite scaphoids that have been described by anatomists and radiologists are, in reality, overlooked ununited fractures. Their radiological appearances compare very strongly with those of known old lesions.

That flake fractures of the os magnum and cuneiform occur is undoubted. In my experience they require plaster immobilization just as much as the fractured scaphoid. This is largely for symptomatic reasons, although their presence implies considerable disruption of the ligamentary structure of the carpus.—I am, etc.,

J. M. ROBERTSON.

Ariboflavinosis

SIR,—Dr. Hugh S. Stannus in the Lumleian Lectures on riboflavin and allied deficiencies (*Journal*, July 22 and 29, 1944) failed to make any reference to my work, "Eye Disease due to Vitamin Deficiency in Trinidad." While he says that "full references will perforce be omitted," it is difficult to understand how he could have published the table on page 104 in the July 22 number and omit Trinidad and my name. He must have known of my work; previous references to it are as follows: (*a*) *Amer. J. Ophthal.*, Nov., 1941, leading article; (*b*) *Lancet*, April 11, 1942, annotation; (*c*) *Trop. Dis. Bull.*, June, 1942, p. 403; (*d*) "The Ariboflavinosis Syndrome," *British Medical Journal*, July 24, 1943, leading article; (*e*) *Brit. J. Ophthal.*, July, 1943; (*f*) ibid., Sept., 1943.

With respect to the observations made in the leading article in the *Journal* of July 29, 1944, that "it is a sad reflection on our colonial administration that these studies should have been made in one of our colonies in the days of prosperity before the last war . . ." it should be pointed out that we have the pellagrologists to blame for a good deal of the administrative inactivity that followed, because of the fervid attempts made by them to keep a large number of vitamin deficiency diseases defined within the symptomatology of pellagra. In that way, and because of the terms "pellagra *sine* pellagra," "pellagra *fruste*," and "pre-pellagra," the annual report of a colony could continue to repeat the formula, "the general health of the colony remained satisfactory," pellagra being regarded as nothing new. Fitzgerald Moore has pointed out that much of the research which has been undertaken in the Tropics has been of an individual nature; and the individual assertiveness that was needed to gain recognition has been the cause of harsh treatment being meted out to some medical officers. It was, however, with some dismay that I saw Fitzgerald Moore drawn into the camp of the pellagrologists, for in 1939 he published "Retrobulbar Neuritis and Pellagra in Nigeria" (*J. trop. Med. Hyg.*, 1939, **42**, 109). I prefer the term "tropical nutritional amblyopia." He also stated in 1939 that *gari*, a dry, parched, manioc food, was associated with the incidence of pellagrinous retrobulbar neuritis; and that belief showed the influence of the work of Alfred Clarke. In Trinidad the latter was called "Tania Clarke" because he thought that the toxic principles which occurred in certain underground foods, tania in particular, were responsible for nutritional disturbances which produced nephritis. A large amount of tania is still consumed in the British West Indies.

A recent article, "Malaria and Nephritis in the British West Indies" (P. Granville Edge, *Caribb. med. J.*, 1944, **6**, No. 1, 32), provides interesting study by way of contrast. Edge begins by pointing out that "so far as health conditions in the Tropics are concerned perhaps the importance of diseases distinguished by exotic names has been unduly exaggerated, and the deadliness or disabling effects of some of the more familiar titles in the nomenclature underestimated. Plague, cholera, yellow fever, malaria, and sleeping sickness are among some of the exotic models which appear to dominate the mortality pictures of life in remote places, for the menace to health and life created by the presence of these diseases has a permanent news and interest value."

With the establishment of U.S. naval and military bases in Trinidad the purchasing power of the people rose to great heights, a tremendous sum of money being spent on skilled and unskilled labour. One result of that is that vitamin deficiency conditions affecting the eye have largely disappeared, patients becoming fewer since 1942. Angular stomatitis is no longer seen, nor burning feet complained of at the eye clinics. There are, however, many problems remaining for research. For instance, there is the failure of drainage operations in many coloured persons, for the darker the patient the less likely is a corneo-scleral trephine to succeed. Also, mild outbreaks of the nummular and macular type of superficial punctate keratitis occur repeatedly among Trinidad-born East Indian sugar estate labourers, while other members of the community in the same areas remain unaffected.—I am, etc.,

Port-of-Spain, Trinidad. VIVIAN M. METIVIER.

Prevention of Industrial Dermatitis

SIR,—The correspondence between Drs. Bourne and Mummery on the value of various preventive measures in connexion with dermatitis has raised many interesting points, and would seem to show that there is a great deal to be learnt on this subject by all of us.

I myself have used the sulphonated castor-oil which Dr. Mummery advocates, and have found it extremely valuable. Apart from its preventive aspect it is ideal as a cleansing agent in established eczematoid rashes of all types, and popular with patients who try it owing to its re-fatting properties. Dr. Bourne's personal experience with a barrier protective cream and metol dermatitis is just that sort of experience which is wanted to establish the value or otherwise of these substances. There has been far too much unscientific acceptance of these creams, which are often backed by an extremely ingenious advertising campaign from the vendors. This much has already been established to my mind: that for a short exposure, such as developing a film or temporary handling of irritants (especially by intelligent users), these creams do protect to some extent. But it is quite another matter when their use is translated into everyday factory work among a mass of employees working for, say, an 8-hour shift. It is indeed difficult to decide their value because so many factors are involved: the experience of the operators; the nature of the oils; the quality of the foremanship; and many other factors. In an article in the *Lancet* in 1943 I pointed out that while some oils are innocuous others tend to produce much dermatitis. Working on these lines the factory doctor should be able to produce valuable results, and the old bogy of the workman neglecting to wash or use creams or take any other safety measure is relegated to its proper place.

American workers have produced many barrier substances of all types for all hazards, but Schwartz, in many of his publications, does not by any means give them pride of place in his category of preventive measures. I myself have seen factories where practically no barrier cream was used and yet very little dermatitis occurred, although cutting oils of every type were seen. Conversely, in factories where much barrier cream is used there may be many cases of dermatitis. Where supervision is bad in a factory no amount of barrier cream will retrieve the position. My own feeling is that good supervision by foremen who are welfare-minded is a very great factor in controlling dermatitis, and that in many cases

this factor is considerably enhanced if the medical and welfare staffs see that washing facilities are adequate. Dr. Bourne is probably right when he insists on protection of every possible kind (including barrier creams), but the relative value of these various protective measures is still a matter of opinion and may differ according to the hazard in question.

There is one other point. As the war progresses the experience of the workers increases, and this makes for less dermatitis in factories. This fact alone makes comparison of dermatitis figures from one year to the next fallacious. Finally, it seems to me strange that some dermatologists, instead of collecting rare and relatively unimportant skin diseases for exhibition at learned society meetings, have not long before taken more interest in workaday medicine and gone into the factories to learn something useful. The academic attitude of some English dermatologists has been a great blow to the value of dermatology to the nation, and the dermatitis of these war years has consequently fallen very heavily on the factory medical staffs, who have largely had to depend on their own initiative for their results.—I am, etc.,

Cowley, Oxford. G. P. B. WHITWELL.

Intravenous Anaesthesia

SIR,—I heartily agree with Dr. H. B. Alcock over most of the points she raises in her letter (Oct. 14, p. 511). A substantial drawback to using the simple technique that she describes is that unless constant attention is paid to the needle it becomes blocked with clotted blood. I should like to mention one small point of technique, which requires no more apparatus but considerably lessens the risk of a blocked needle. In practice I cannot claim that it rules this out completely, but I have found it very helpful and it may appeal as worthy of trial to those who are not enthusiasts for "cumbersome" apparatus.

If a short-bevel needle, or one which is not too hollow ground, is used, it can be so arranged that it rests against the inner wall of the vein and prevents blood entering the needle and clotting. To do this I place the needle, bevel facing upwards, on an eccentric nozzle syringe. When the needle has been introduced into the vein I fix the syringe to the arm in such a position that the tip of the needle presses gently skinwards against the superficial wall of the vein. This usually just allows the outline of the needle to be seen for its full length by a slight raise in the skin. Before injecting further doses of anaesthetic solution I generally depress the point of the needle to lie in the centre of the vein, letting it fall back to its original position before relaxing pressure on the plunger after injection.

I cannot claim that this method is perfect, for occasionally the needle does block, due presumably to movement or faulty placing, but intervals between injection have often exceeded half an hour. On one occasion a needle was left untouched during the latter two hours of an operation, and found to be patent at the termination. Whether this technique harms the vein I cannot say, but thrombosis seems to occur at a rate no higher than when 5% pentothal is used by other methods.

I disagree with Dr. Alcock over one point—namely, that I use a 17 short-bevel needle for preference.—I am, etc.,

Aylesbury, Bucks. J. MORLAND SMITH, D.A.

Heredity and Tuberculosis

SIR,—It may well be that in showing, as Stocks remarked, a tendency to ignore the evidence about heredity in tuberculosis the profession has also shown shrewd common sense. Although it is true, as Barbara Burks pointed out, that there are certain directions in which this knowledge may be immediately applied, it does not alter the fact that environmental factors are the ones about which we as a profession can do something.

It is surely the fact that the husband or wife of the patient is five times as likely to develop clinical tuberculosis as an ordinary person that is important for the doctor and sociologist. The marital partner shares an overcrowded room with the patient; she shares his low wages and unsatisfactory diet. These are social problems which can be tackled now. Good houses can be built as labour and materials become available. An application to peace of the lessons learnt in war can ensure that an adequate share of the nation's food is available to all. Even in the period of unstable economic equilibrium between the wars the tuberculosis figures improved slowly. During the war this trend has been reversed. It is plain both to the profession and to the public, that a low tuberculosis rate is an index of prosperity, and vice versa. By comparison with these obvious facts the painstaking observations of Kallmann and Reisner are of little more than academic interest at present to the general practitioner and sociologist.

Advice such as that given by Barbara Burks as to choice of relative to nurse the sick patient may be sound, but how many working-class families are in a position to pick and choose in this matter? The problem is still the old one of the provision of adequate sanatorium beds.

In almost all disease there is a constitutional factor, great or small, but it is the environmental factor which is capable of modification. Prompt action now may avert a tragic increase in tuberculosis in the London area as a result of wanton Nazi destruction of homes and consequent overcrowding. Sensible planning of the nation's resources may reduce tuberculosis to a minimal level in one generation. How many generations would be needed to select a tuberculosis-resistant population?—I am, etc.,

St. Mary Cray, Kent. BRIAN H. KIRMAN.

Atmospheric Pressure and Migraine

SIR,—Though emotional factors are important in the aetiology of migraine they should not be overstressed. The observations described here may be of interest.

For a period of six months three of my patients had their attacks of migraine secretly recorded by relations. At the end of this period I compared the records with the barometric chart for the same period. It was observed that many attacks occurred when the barometer was rising or falling steeply, and some such happened in the small hours of the night, waking the patients from sleep.

I am not prepared to assert that atmospheric pressure is the whole explanation in these cases. But in a seemingly unrelated field—the rheumatic—we note that changes in weather may provoke symptoms. These do not seem to result merely from alterations in humidity or temperature, and pressure change may be part of the explanation. Some Continental workers have suggested that changes in the ionization of the atmosphere associated with and essential to changes of weather, affect the sensitive subject. I have yet to meet a convincing explanation of the ache in an old wound in bad weather.

Physiologists have here, I think, an interesting field of inquiry. And could they tell us if thunder weather causes any characteristic variations in encephalograms?—I am, etc.,

G. C. PETHER.

London Medicine

SIR,—Brevity, though in these times doubtless the supreme recommendation to an editor, sometimes defeats itself. It does so when it sacrifices full clarity, as in the case of Mr. Twistington Higgins's kind reply to my letter. I should like on behalf not only of myself but also of your many readers who must be interested in the profoundly important issue of London postgraduate medicine, to ask Mr. Higgins to expand a little some of the things he said. Thus, speaking of the proposed Institute of Child Health, Mr. Higgins said: "The conception in the minds of its originators has always been just as comprehensive as Dr. Rowland Hill suggests it should be." What I suggested it should be (and this principle applies to any comparable institutes in other special subjects) is fundamentally a full, fair, and equal partnership from the word "go" between all voluntary children's hospitals in the London area, with Great Ormond Street asking for no special privilege or power on the ground of its greater size *vis-à-vis* the others. I ask Mr. Higgins very respectfully to tell us if this is what he and his colleagues want. If so, I and many others will feel much relieved.

Mr. Higgins tells us that the plan for an Institute of Child Health emanated from Great Ormond Street, and that "we are proud of the fact." It is good to know that it came from his hospital. Mr. Higgins, I feel sure, will agree that additional fruitful ideas may originate from time to time in any other

of the children's hospitals, great or small, and will not desire to claim that his own has any monopoly of enterprise or originality. The marriage idea, for example, resulting in the recent formation of the splendid and promising Queen Elizabeth Hospital, was also one of which the hospitals concerned may well "be proud." Perhaps in the end it may prove as fine and productive a one as the "institute" idea. Let us welcome all these ideas in a mood of mutual respect and appreciation; and, in keeping with the open tradition which is the glory of English medicine (or should be), let us place them unreservedly in the common pool for the good of humanity and without thought of notoriety or reward for any particular institution. I feel we may well leave pride out of these altruistic matters unless it is a general pride in the achievements of English medicine as a whole.

I am particularly apprehensive and puzzled when Mr. Higgins goes on to say the "present collaboration between the University of London, the L.C.C., the Postgraduate Medical School, and the Hospital for Sick Children would seem to assure an adequate breadth of vision, which certainly aims at *embracing* in the future *every* paediatric activity in and around London." (The italics are mine.) As these words stand (I hope I am wrong, and my deep apology is formulated ready for instant utterance if I am) they convey to me a disquieting meaning. Why is Great Ormond Street the only children's hospital mentioned by name as collaborating with those bodies of presumably growing importance under the altered medical regime which we all anticipate after the war—the University of London, the L.C.C., and others? If I were a paediatrician getting to work to build up a London Institute of Paediatrics, I would (from a sense of right and justice) first approach my colleagues in all the other children's hospitals. Only after strong and friendly alliance had been made would I, on behalf of metropolitan paediatrics as a whole, approach public and official bodies like the University of London and the L.C.C. I hope this is what was done, and that Mr. Higgins will reassure me.

I shall be really grateful to him if he will banish the fears I feel over his phrase: "Aims at embracing . . . every paediatric activity." Does he mean that his institute, composed of the institutions he has named, will grow so strong and large that it will eat up all London paediatrics (with the aid of the Nuffield windfall), so that all the other children's hospitals will have little to do, will not count for much, and will only continue a nominal existence, if at all, on terms dictated to them? Or does he mean—and I truly hope he does mean—that they will all freely enter his institute as equal partners, with equal rights of suggestion and decision, and equal benefit from the windfall from the very start? I venture to prophesy that any institute not based on this last principle of sense and justice will have a deservedly distorted, disappointing, and stunted career.

Of the three initial institutes mentioned in the Goodenough Report, I understand that that of ophthalmology promises most nearly, by steps already generously and spontaneously taken by the parties concerned, to base itself on the foundation of equal partnership and combination between all the London voluntary hospitals in the specialty, and in this spirit, good fortune to the enterprise! On the other hand, so far not the faintest zephyr of a whisper of this spirit has yet been felt in the exclusive aristocratic world of the specialty with which I am concerned; but perhaps this is only the calm before the supremely constructive storm. Let us hope so.

Finally, repeating my respects and apologies held ready in advance, let us hope that an atmosphere of growing confidence may be assisted by Mr. Higgins's further reassurance.—I am, etc.,

London, W.1. T. Rowland Hill.

Drugs and the Doctor

Sir,—Regarding the leading article "Drugs and the Doctor" in your issue of Oct. 21, I agree with almost everything you say except that the Pharmacy and Medicines Act, 1941, was a cartel agreement between the pharmaceutical profession and the proprietary medicine industry, which divided the retail market for drugs.

As my organization was primarily responsible for those negotiations with the proprietary medicine manufacturers, your readers may be interested in the facts of the matter. We were informed that the Chancellor of the Exchequer proposed repealing the Medicine Stamp Duty. In reply to our protest against the freedom from control involved in the repeal the Chancellor said that if the manufacturers and retailers put forward any reasonable proposals to replace the Medicine Stamp Duty and obviate the evils we foresaw he would consider those proposals. The result was a fight between the pharmaceutical profession and the proprietary medicine industry; we never got complete agreement, and my organization fought the Bill in the House of Commons, receiving an unmerited castigation from the Minister of Health because he said he had the support of the Pharmaceutical Society. The Bill contained clauses on other matters which the society desired.

May I add that the pharmaceutical profession as a whole would welcome any reasonable controlling of the sale of medicines in the public interest?—I am, etc.,

G. A. Mallinson,
The National Pharmaceutical Union. Secretary.

Sir,—Your leading article on drugs and the doctor (Oct. 21, p. 535) is very instructive and timely. (1) We are informed by you that the patent medicine industry spends £3 million a year on advertisements, has a capital of £100 million, sells £20 million worth of drugs to a quarter of the population of the country "without medical advice and to the detriment of their health." (2) You are not sure whether a National Health Service is compatible with the advertisements of pharmacopoeial drugs. (3) You mention that sulphanilamide (to name only one drug) is being bought from a common source and sold under fifty-odd proprietary names at 300% profit. (4) You state that although the effects of patent medicines on personal and social health are harmful no Government has had the strength or courage to control it. (5) Your remedy for all this robbery, exploitation, and harm is that the individual doctor or patient must be supplied with unbiased information. (6) Lastly, you cite the example of the Americans, who "manage things much better than we do."

In this article you have no doubt made out a very strong case against the continued existence of the patent medicine industry, but you, like the Government, have not had the strength or courage to suggest the only remedy that can put an end to the nefarious practices of this industry—i.e., State control at a cost of £100 million of public money—and this sum is less than what we are spending in a week on war. When shall we learn to face the problem squarely, to hit the nail on the head, and to uproot the evil completely instead of applying palliative measures? No doubt the patent medicine industry will tell us all about the virtues of private enterprise and lack of initiative and individuality under State control, but if our municipal corporations and such huge enterprises as gas, water, and electrical industries can be run efficiently under State control, surely we can abolish the profit-grabbing patent medicine industry and hand over the pharmacological research to the Government at a cost of perhaps less than £3 million per annum, which is the sum that is being spent annually on advertisements of patent medicines. Sir, will you have the courage to advocate this policy?—I am, etc.,

Manchester. M. R. Soni.

"Dissident Doctors"

Sir,—Your annotation suggests two questions. Why are there any dissident doctors and into what groups do they fall? By whom, when, and why were the proposed National Health Services identified in politics?

The answer to the first question is conditioned to some extent by that to the latter. Except for a small minority, surely all practising doctors were agreed upon the "medical policy" of the B.M.A. from the Dawson report to the publication of the draft Interim Report of the Medical Planning Commission. All of the recommendations lacked "political" complexion. When, however, the White Paper was published—as if the Government was too impatient to wait for any final report of the M.P.C.—medical services came to be discussed in Parliament. Various opinions reflecting party differences were expressed and debated; in particular, questions of organization and control. How else could it be? Thus the Government

itself introduced medicine into politics. Now, the B.M.A. does not openly refer to party issues, and a majority of its members deplore their intrusion. On the other hand, the S.M.A. exists to spread a knowledge of Socialism within the profession. Since Socialism has identified itself with the Labour Party, the S.M.A. has thus introduced party politics into medicine. Is the B.M.A. wise any longer to ignore the activities of this group of dissidents?

There is yet a second group of dissidents identified in the recently formed M.P.A.—who foresaw the cloud, anticipated the dictum of Gordon Malet with which you end your annotation, and sought and still seeks to counter party politics. The "reactionary M.P.A." evolved, together with certain Divisions of the B.M.A., as a reaction to the revolutionary movement of a vociferous minority which so many regret and so few understand. Over all the B.M.A. tries to survey the scene with a statesman-like demeanour, but presently it must see the challenge of the politicians.

A movement with national organization as its objective and bureaucratic control its consequence threatens to engulf us while our soldiers (the better part of our population) are away fighting (at any rate in *their* opinion) against this same atavism which exists abroad. The ordinary man, especially the scientifically trained man, is at a bad disadvantage in this sort of conflict. First, of course, he is obliged by his necessities or his conscience (or, happily, both) to devote his energies mainly to earning a living, incidentally doing his share towards the national life and responsibilities. Secondly, by his training he finds betrayal of trust and distortion of truth to be distasteful to the point of prohibition, but they are disqualifications to which the professional politician is not immune. We must realize that in party politics we are in an unfamiliar field, and that issues here are not to be settled judicially by a consideration of pros and cons—but by passion and self-interest catalysed and directed by crafty mob-raisers at the behest of juntas.

When writing to the medical profession itself one can, with hope of success, present a case from a factual standpoint, and a good argument is a sound one. Facts or analogies have a chance of being weighed objectively, but this is emphatically not the case when one encounters the politician *in persona propria,* or his general audience. Here assertion, passion, reckless misstatement, humbug, overt promises repudiable at leisure and all directed to the lower instincts, are the successful tactics. One can have sympathy with the prelate who retired from a public controversy with a well-remembered politician with the remark: "I cannot go on. I realize a gentleman has no defence against a blackguard." Each of these tactics has been employed recently, and not without effect, in reference to the health services.

Should the intrusion of political propaganda into medicine be a danger, then a great danger exists. Yet it will be to the moral credit of the profession if so far it has been overlooked. The danger is that the medical practitioner may fail from this standpoint: that he may depend upon a statement of his case in terms of a scientific discussion of fact which will be brushed aside under a barrage of abuse and passion-raising phrases. As a precedent I instance the Ministerial reaction to the report of the Council of B.M.A. to the Representative Body.

In the political field one must use political methods. The whole business is distasteful, but since the B.M.A. already has a public relations officer it might best be solved by hiring a political officer to run the campaign for them—thus keeping their hands and minds clean. But if this can't be done, then the matter must be faced like an enema or a childbirth—a dirty business but justified of its results. A recent article in the *Daily Herald* referred to the monopolistic vested interest of the medical profession, which was accused of insolence and defiance of democracy by presuming to reject control of its members by the House of Commons. It is futile for any mere doctor to attempt to rebut this excellent example of poisonous political tactics. But if this be the voice of a misguided minority, is it expedient to meet it with silence? Silence is but a short remove from ineptitude.

Upon what authority did the *Times* recently state that owing to the favourable reception given to the White Paper the Ministry is now actively engaged in drafting legislation? I remember a Governmental promise that ample time would be allowed for the professional organizations to discuss, perhaps even influence, proposed legislation. We shall not be able to guess what time will remain between the A.R.M. and the introduction of the Bill into Parliament until His Majesty makes his Speech next month. The B.M.A. will start with a nine months handicap. At the A.R.M., and as between medical men, expressions of sincere conviction will be weighed objectively. But if there is to be any conflict between professional doctor and professional politician, let us remember that "bare hands and courage cannot counter tanks." Are those who suggest the urgent need for appropriate weapons to be castigated as dissidents, too?—I am, etc.,

Watton-at-Stone. MAURICE WIGFIELD.

SIR,—Though deeply divided on side issues the Ministry of Health, the executive of the British Medical Association, P E P, the Socialist Medical Association, Dr. Gordon Malet, and other organizations and individuals are united in a policy of centralized control of doctors and patients. It can be truly said of these that though they march separately they fight together.

Opposed to this uneasy alliance is the Medical Policy Association, uncompromisingly taking its stand on the preservation of the freedom of doctors as individuals and their inalienable right to act in response to the demands of their patients rather than to the directions of bureaucrats—medical or lay.

The relation to this vital issue of the medical profession as a whole and of the general public is still obscure. It is essential that the situation be clarified. This can easily be done, at least so far as the medical profession is concerned, by means of a *sensible* questionary. Why, then, is the profession not given the opportunity to declare its will in this matter?—I am, etc.,

Bexley, Kent. E. U. MACWILLIAM.

The Young Married Doctor

SIR,—I should like to endorse what your correspondent "Y.M.D." has to say regarding accommodation for married men in resident hospital appointments. As it appears probable that the municipal type of hospital employing an increasing number of senior resident medical officers will increase in the post-war period, it is of the greatest importance that accommodation for married men, preferably on the separate house or bungalow system, should be made available for holders of these appointments.

That committees are prejudiced against married men is only too true, and arises from their experience that the work of a married man with a home outside the hospital area frequently suffers from his divided interests. Under the present system many men are faced with the alternative of unduly delaying their marriage and the starting of a family or of giving up resident hospital work. The first alternative is not only a personal tragedy but also a national one; the second may well prove to be a serious handicap to the growth of a national hospital service. A wider outlook, a little thought in planning, and a comparatively small capital outlay are all that are required from voluntary and municipal hospital authorities to put this matter right.—I am, etc.,

E. A. HOARE.
Medical Superintendent.

Demobilization and the E.M.S.

SIR,—I have just read your issue of Oct. 7 sitting beside a "slit trench" in Holland. It is the sole connexion I have with modern advances and specialized medicine, and fulfils its function only too well. I beg, however, to criticize severely the letter on demobilization and the E.M.S. by Robert J. Rutherford (p. 482). I trust that when the war against Germany has ceased all medical officers in both the B.L.A. and the Far East who have served over three years will be replaced in the Forces gradually by E.M.S. practitioners who have had their experience uninterrupted by war and have lived in relative comfort and security.—I am, etc.,

H. HOLDEN

Obituary

Dr. HAROLD FRANKLYN, who died on Oct. 17, was well known as a radiologist in Yorkshire. Born in Manchester in 1894 son of Arthur Franklyn, he was educated at Malvern College, at Christ's College, Cambridge (where he took his B.A. in 1916), and at St. Bartholomew's Hospital. He qualified M.R.C.S., L.R.C.P. in 1921, and held house appointments at Bart's, at the Middlesex Sanatorium, Harefield, and at the David Lewis Northern Hospital, Liverpool. He then worked for a time in the electrical department of the Prince of Wales's Hospital, Tottenham, living at High Barnet, and took the D.M.R.E. in 1926. Dr. Franklyn's next and final move was to Bradford, where he acquired a large radiological practice; he became honorary physician in charge of the radiological department at the Royal Infirmary, regional radiologist for East and West Yorkshire in the Emergency Medical Service, radiologist to St. Luke's Municipal Hospital and to the Royal Eye and Ear Hospital, Bradford, and was consultant in his specialty to the Halifax Royal Infirmary and the Skipton Hospital.

Dr. HAROLD AXEL HAIG, who died in retirement at Pagham Beach, near Bognor Regis, on Oct. 21, spent almost the whole of his professional life in the laboratory. He was born in London on March 16, 1877, and studied at University College Hospital Medical School, where he won the Bucknill Science Scholarship. He graduated M.B., B.S.Lond. in 1905. After a year or two as R.M.O. at the Essex County Hospital he was appointed lecturer in histology and embryology at University College, Cardiff, in 1910, and three years later research fellow in cancer at the University of Aberdeen. He served during the last war, with the temporary rank of captain, R.A.M.C., as pathologist to the 15th, 17th, and 21st General Hospitals, Alexandria, and before returning to this country to take up the post of lecturer in pathology and bacteriology in the Welsh National Medical School at Cardiff was for a time research pathologist in the Department of Public Health at Cairo. Dr. Haig joined the B.M.A. in 1914 and was a member of the Pathological Society of Great Britain and Ireland and the Cardiff Medical Society. He published a number of papers on cellular pathology, and was the author of *The Plant Cell: Its Modification and Vital Processes* (1910), and of *An Introduction to the Histology of Tumours* (1924).

The untimely passing of Dr. SELWYN JONES of Ruthin, at the age of 36, after a short illness, has deprived North Wales of one of the ablest of its younger practitioners. He was educated at Epworth College and in 1928 entered King's College Hospital, where his athletic prowess secured him a place in the first rugger and tennis teams. After qualifying in 1933, he set out to prepare himself, as fully as possible, for the arduous duties of his chosen life's work—general practice. He was house-surgeon and house-accoucheur at his own hospital, resident medical officer at the Royal Waterloo Hospital, and then served as R.M.O. at the London Clinic for a year. Thus equipped, he began practice at Kensington, but the lure of his native haunts was too strong and in 1939 he settled down in Ruthin in partnership with his father, Dr. T. O. Jones. In an extensive country practice, all his training was utilized to the great advantage of the community, and in a short time he won its affectionate regard to a remarkable degree. In addition to the claims of practice, he gave freely of his time and energy as medical officer to the Home Guard and lecturer to the Red Cross and St. John Organization. The most noteworthy phase in his character was careful attention to the details of treatment. His case-notes accompanying patients to hospital were models of what such notes should be, and provided clear evidence of his mature clinical judgment. Selwyn Jones, however, was much more than a successful doctor—he was a man of wide culture, a lover of books, a generous host, and he took a deep interest in all country pursuits. The sincere sympathy of a host of friends goes out to his wife, also a medical graduate, to his two young children, and to his parents.—E. W. J.

With the death of Dr. JOHN FERGUSON at his home in Stockport Road, Chorlton-on-Medlock, Manchester, aged 88, the British Medical Association loses a member who joined as long ago as 1877. He was educated at Owens College, qualified M.R.C.S., L.R.C.P. in 1876, and had served as house-surgeon and house-physician at the Manchester Royal Infirmary. He took the M.D. of Durham University in 1896 and the B.Sc. of Manchester University in 1904. Dr. Ferguson was a past president of the Manchester Medico-Ethical Society and vice-president of the Manchester Medical Society.

The Services

Capt. V. J. Downie, M.C., R.A.M.C., and Majors G. McC. Bastedo and C. E. Corrigan, R.C.A.M.C., have been awarded the D.S.O., and Capt. (Temp. Major) A. C. S. Hobson, Capts. L. Crome, J. A. Petrie, and A. I. Pirie, R.A.M.C., Capt. M. K. Ray and Lieut. D. K. Ramadwar, I.A.M.C., have been awarded the Military Cross in recognition of gallant and distinguished services in Italy.

CASUALTIES IN THE MEDICAL SERVICES

Died.—Surg. Lieut.-Cmdr. Duncan MacKay Reid, R.N.V.R.

Killed in Normandy.—Capt. James Cowie Thom, R.A.M.C.

Previously reported missing, now presumed to have lost his life in action off Brittany.—Surg. Lieut.-Cmdr. Hugh De Lancey Noel Davis, R.N.V.R.

Missing in action, now presumed killed.—Surg. Lieut. Peter Slade Cuthbertson, R.N.V.R.

Missing, presumed killed.—Temp. Surg. Lieut. Charles John Sanders Green, R.N.V.R.

Missing at Arnhem.—Capt. S. R. Mawson, R.A.M.C.

Reported missing at Arnhem, believed prisoner of war.—Capt. A. W. Lipmann-Kessel, R.A.M.C.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation of the Senate on Oct. 2 Dr. T. Shirley Hele, F.R.C.P., Master of Emmanuel College, resigned the Vice-Chancellorship and gave an address before his readmission to the office for the year 1944–5. In naming with reverence and honour those of the older generation who had died during the year Dr. Hele said that Sir Humphry Rolleston, formerly Regius Professor of Physic, was an outstanding figure in the field of medicine, who would be remembered not only for his literary and scientific work but for his unfailing courtesy and sympathetic understanding towards all who sought his advice. The University had done its utmost to guard the interests of those members of the staff away from Cambridge on national service, and for some long time had refused to make any permanent appointments, as these might be regarded as injurious to the absentees. A new policy had been adopted by the University in the course of the year in allowing a teaching officer, whether resident in Cambridge or absent on national service, to be appointed on a permanent basis when his appointment would not interfere with the interests of others. A committee was in being, representing the University and Addenbrooke's Hospital, to prepare the ground to implement the recommendations of the Report on Medical Schools issued by the Goodenough Committee, if and when the recommendations in the report were accepted and the necessary financial support was available. Preliminary steps had been taken to arrange for instruction in the hospitals of the Eastern Area, at the earliest possible moment after demobilization, for young medical officers whose normal training had been curtailed.

At a Congregation held on Oct. 20 the following medical degrees were conferred, all by proxy:

M.D.—F. H. Coleman.
M.B., B.CHIR.—A. Comfort, G. I. C. Ingram, R. H. Boardman, P. Venables.
M.B.—E. B. Pawson.

In the list of titles of degrees conferred by diploma on members of Girton and Newnham Colleges during the months of July, August, and September, appears the name of M. M. Tunstall-Behrens, as receiving the M.B., B.Chir.

UNIVERSITY OF LONDON

At a meeting of the Senate held on Oct. 25 it was announced that the Faculty of Medicine had elected as its Dean for the period 1944–6 Mr. J. B. Hunter, *M.C.*, M.Ch., F.R.C.S.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At a quarterly Comitia held on Oct. 26, with the President, Lord Moran, in the chair, Air Vice-Marshal C. P. Symonds, Dr. T. L. Hardy, and Dr. J. A. Charles were elected Councillors.

The following were elected Representatives of the College: Sir Adolphe Abrahams on the Committee of Management of the Conjoint Board, Sir Comyns Berkeley on the Council of the Central Midwives Board, Sir Stanley Woodwark on the Central Council for District Nursing, and Dr. J. Hay on the Court of Governors of the University of Liverpool.

Dr. H. E. Magee was appointed Milroy Lecturer for 1946. The Jenks Memorial Scholarship was awarded to Philip Hague Lovell, late of Epsom College. Prof. C. Bruce Perry will deliver the Bradshaw Lecture on "The Aetiology of Erythema Nodosum," on Thursday, Nov. 9, at 2.30 p.m., at the College.

The following, having satisfied the Censors' Board, were elected Members of the College:

*Y. Abd el Ghaffar, M.B.; J. N. Agate, M.B.; A. D. Barlow, M.B.; A. J. V. Cameron, M.B.; *Squad. Ldr. T. A. W. Edwards, R.A.F.; *A. El Mofty, M.D.; *Mahmoud N. el-D. Fahmy, M.D.; E. A. Fairburn, M.B.; *M. A. R. Fayez, M.D.; J. L. Fluker, M.B.; Flying Officer J. H. Friend, R.A.F.; M. R. Geake, M.B.; Wing Cmdr. J. G. Howlett, R.C.A.F.; *Capt. J. A. Inglis, R.A.M.C.; Squad. Ldr. R. W. Lass, R.A.F.V.R.; F. K. Lau, M.B.; J. M. Lipscomb, M.B.; *Major F. L. A. Lydon, R.A.M.C.; R. I. McCallum, M.B.; *D. R. Macdonald, M.B.; G. Marcel, M.D.; Major R. J. G. Morrison, R.A.M.C.; *A. H. Mousa, M.D.; P. B. Newcomb, M.B.; *A. Omar, M.B.; J. Overton, M.B.; *Y. Rizkalla, M.D.; Dorothy H. Robertson, M.B.; Lieut. J. R. Trounce, R.A.M.C.; *H. Whittaker, L.R.C.P.; Major J. V. Wilson, R.A.M.C.

*Admitted *in absentia*.

Licences to practise were conferred upon the following 174 candidates (including 27 women) who had passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board and have complied with the necessary by-laws of the College:

Doreen M. Aaröe, E. W. R. Alderman, P. Allebone, P. M. Anderson, J. D. Andrew, John Andrew, Joseph Armstrong, Roy Astley, F. J. Aumonier, A. D. Bangham, R. H. O. Bannerman, J. C. Barclay, M. A. Barker, F. Batley, Katharine M. O'B. Beadon, M. F. Bethell, D. T. A. Brown, A. Bruce, Alice E. Buck, Joan Bullough, R. D. Calcott, G. R. H. Calleja, M. D. Caplan, H. S. Capoore, D. Cappon, J. A. Carr, H. E. Claremont, C. B. Clarke, I. F. Collie, Pamela J. Coope, A. R. Corbett, J. H. Coulson, R. A. Cranna, G. E. Cree, R. Creese, R. H. Cutforth, Jyoti K. Datta, P. L. H. Davey, Edith M. Davies, Joan M. B. Davies, Rosemary Davies, A. M. Dawson, I. M. P. Dawson, S. J. Dickson, J. W. T. Dixon, M. H. N. Dixon, Aileen P. M. Dring, S. L. Duggal, M. Duggan, J. S. Ebsworth, V. B. J. Edwards, M. A. Epstein, S. Epstein, D. M. L. Evans, B. L. Finzel, L. G. Fison, T. W. Forster, Maud M. Frankland, P. H. Friedlander, A. E. Gibbs, Muriel M. Gloster, J. S. R. Golding, G. E. L. Graham, J. C. Graham, Joyce F. Grant, B. A. J. C. Gregory, A. J. M. Griffiths, G. J. Grossmark, D. W. Hall, H. A. N. Hamersley, L. G. W. J. Hannah, R. M. Hardisty, R. O. F. Hardwick, L. I. Hatherley, Katharine P. Haworth, Alison B. Hay-Bolton, F. G. J. Hayhoe, P. R. Headley, Josephine M. R. Heber, E. W. Heining, E. P. W. Helps, A. Hill, F. A. Holden, C. J. S. Holdsworth, R. G. Howell, Margaret E. Hughes, C. F. Hutton, D. G. James, N. H. James, Arthur Jones, S. K. Kalgutkar, J. G. Kendall, Ethel E. A. Knowles, Barbara Law, David Lawrence, B. C. Lee, R. E. D. Leigh, D. W. L. Leslie, M. Levene, W. B. Lingard, G. H. Lloyd, E. S. Lower, J. Meyrick, C. M. Monro, Rhiannon Morgan, P. D. Mort, J. P. D. Mounsey, B. G. P. Oakenfull, T. D. S. Oswald, K. G. Paddle, K. W. E. Paine, H. E. Parry, P. F. Pearson, B. H. Pentney, J. C. E. Peshall, R. G. Pitman, B. R. Pollard, G. W. Poole, Diana Powell-Cotton, J. P. Pracy, R. Pracy, P. D. G. Pugh, R. J. P. Pugh, N. E. Rankin, K. E. E. Read, Moira K. E. Reaney, A. Q. Ritchie, D. C. Roberts, W. G. Robinson, Elizabeth V. Rohr, C. Rose, C. D. Routh, M. E. Samuah, G. H. Seale, R. A. Setchell, S. Sheare, R. H. Shephard, J. Shibko, R. F. Shove, R. L. Shrivastava, Patricia D. Shurly, K. E. D. Shuttleworth, R. L. Sikes, B. P. Skinner, D. McG. Smart, Catharine E. Smith, G. B. Smith, I. B. Smith, J. S. Smith, Agnes A. V. Smyth, B. S. H. Storr, S. P. W. Street, J. E. H. Stretton, G. L. Stumbles, B. S. Sweetman, R. E. N. Tattersall, J. D. G. Turner, A. B. Vanscolina, T. R. Waddell, A.McR. Walker, R. C. Walsh, H. D. Walters, B. C. H. Ward, E. N. Watson, C. H. A. Wedeles, J. E. M. Whitehead, M. R. Williams, R. F. Williams, R. J. Williams, R. A. Womersley, T. M. Wood-Robinson, Sophie E. J. Wright, V. J. K. Wright, M. Zoob.

Diplomas in Ophthalmic Medicine and Surgery (sixteen) and Medical Radiology (five) were granted, jointly with the Royal College of Surgeons of England, to the candidates whose names appear in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of Aug. 19 (p. 260).

Medical Notes in Parliament

Standardized Hearing Aids

In the House of Lords on Oct. 24 the DUKE OF MONTROSE asked, in view of demobilization, what progress had been made by the Government in their negotiations with the hearing-aid manufacturers to produce national standardized hearing aids.

Lord TEMPLEMORE replied that the Medical Research Council had appointed a committee to investigate the electro-acoustic problems connected with the manufacture of hearing aids. It was hoped that this committee would be able to recommend specifications for standard models which could be sold at a reasonable price. The committee had already held several meetings, and a number of physicists had been appointed to collaborate with otologists and physiologists in experimental work on their behalf. Such discussions as had taken place between Government Departments and the hearing-aid manufacturers had been very informal. He understood that the Association of Hearing Aid Manufacturers had prepared a tentative specification for a standard hearing aid, and had submitted some information about it to the committee. It was too early yet to give any indication of the price at which any standard hearing aids would be sold, but they were supplied free of charge to ex-Service men suffering from deafness due to war service.

New National Loaf

Dr. SUMMERSKILL asked on Oct. 25 whether the Minister of Food was satisfied that the vitamin content of the new loaf was as high as in the old. Col. LLEWELLIN said that before he altered the extraction rate of flour he was assured that he could do so without there being any appreciable loss of vitamin content in the national loaf. Now that the new flour was produced on a large commercial scale he had samples continuously taken so that he could be sure that this was so.

Research under an N.H.S.

Asked by Mr. Salt on Oct. 26 to what extent questions of medical research would be dealt with in the national health scheme, Mr. WILLINK said encouragement and assistance of research would continue to be primarily the function of the Medical Research Council, which was set up by Royal Charter for the purpose. The Government intended that research and opportunities for research should be continually developed with the help of the Council.

Supply of Doctors in Defence Areas.—Mr. JEWSON inquired on Oct. 19 whether steps had been taken to provide an adequate increase in the number of medical men in defence areas from which the ban had been lifted, causing the return of the population. Mr. WILLINK said the Local Medical War Committees were keeping the situation under review. No special difficulty in these areas had so far been brought to notice. If and when the need arose the committees would no doubt make recommendations to the Central Medical War Committee in the normal way.

Rubber Gloves.—On Oct. 24 Mr. HOGG asked the President of the Board of Trade whether, in view of the increased supplies of rubber, he would increase the allotment for the provision of surgical gloves. Mr. GARRO-JONES, who replied, said that surgical gloves had to be made partly of natural rubber, supplies of which had not increased. The Minister of Supply, who was responsible for the production of these gloves, was not aware of any substantial volume of complaint that supplies were insufficient to meet essential civil needs.

Food Shortage in Holland.—On Oct. 24 Mr. FOOT informed Mr. Harvey that he had received information from the Dutch authorities that the shortage of food in Holland was acute. His Majesty's Government and the United States Government, in consultation with the Netherlands Government, were endeavouring to make arrangements for bringing relief to the civilian population.

Pneumoconiosis Compensation Cases.—Mr. HERBERT MORRISON on Oct. 29 told Mr. Daggar that the number of applications to the Silicosis Medical Board for certificates under the Pneumoconiosis Compensation Scheme for coal-miners in South Wales and Monmouthshire had for some time past considerably exceeded the capacity of the medical board to deal with them. In recent weeks additional doctors had been appointed to the board in South Wales with a view to expediting the examinations, but some time must elapse before the arrears were overtaken.

Notes in Brief

Penicillin is produced in India only on a laboratory scale. No difficulty is foreseen in meeting from elsewhere all military requirements.

The combined United Kingdom and U.S.A. authorities, in collaboration with the Greek Government, have made plans for introducing medical supplies into the liberated areas of Greece. UNRRA will act as agents.

No scientific attachés have yet been appointed to British missions in foreign countries, but in Washington a British mission exists to exchange scientific information with the United States Government. In Chungking Dr. Joseph Needham, F.R.S., directs an office to promote scientific contacts with China.

Medical News

The Pharmaceutical Society of Great Britain announces a lecture on "Properties and Uses of Penicillin in Relation to Pharmacy," to be given by Mr. A. L. Bacharach at 17, Bloomsbury Square, London, W.C., on Thursday, Nov. 9, at 7 p.m., with lantern-slide illustrations. This is the first of a series of meetings arranged for the winter session, to be held on the second Thursday in the months of November, December, January, February, and March.

The U.S. Office of War Information states that the problems involved in the international control of venereal diseases will be discussed by representatives of England, Norway, Mexico, Canada, and the U.S. at the post-war venereal disease control conference to be held from Nov. 9 to 11 at St. Louis. The conference will consider methods of broadening the application of recent advances in treatment and will bring together experts in all phases of venereal disease control.

Lord Moran and Prof. G. W. Pickering are to address the London Branch of the Science Masters Association on Saturday, Nov. 11, at 2.30 p.m., on "Pre-medical Education." The meeting will be held at Mercers' School, Holborn (opposite Gamage's), and admission is free. Any doctors interested are invited to attend.

The annual general meeting of the British Medical Students Association will be held at B.M.A. House, Tavistock Square, London, W.C., on Nov. 10, 11, and 12. The Minister of Health is attending the session beginning at 4.30 p.m. on Friday, Nov. 10, and the chair will be taken on that occasion by Mr. H. S. Souttar. The programme of that particular session will be: (1) Chairman's opening remarks. (2) Presentation of results of questionary on a National Health Service to the Minister by a member of the student body who will make a short speech. (3) Address by the Minister. (4) Questions. (5) Votes of thanks.

A meeting of the Middlesex County Medical Society will be held at Redhill County Hospital, Edgware, on Saturday, Nov. 11, at 2.45 p.m., when a clinical demonstration will be followed by three short papers on the treatment of sterile mating, by Dr. M. Rose; the choice of the anaesthetic, Dr. S. W. Coffin; and the problem of the treatment of varicose veins, Mr. Frank Forty.

A joint meeting between the Section of Psychiatry, Royal Society of Medicine, and the Association of Industrial Medical Officers will be held on Tuesday, Nov. 14, at 1, Wimpole Street, W.1, at 4 p.m. The subject of the discussion is: Psychiatric Advice in Industry. Speakers: Dr. Aubrey Lewis, clinical director, Maudsley Hospital; Dr. Elizabeth Bunbury, investigator, Industrial Health Research Board; Dr. Ernest Capel, medical officer, Joseph Lucas Ltd.; Dr. Russell Fraser, investigator, Industrial Health Research Board.

At a meeting of the Medical Society of London to be held at 11, Chandos Street, W., on Monday, Nov. 13, at 5 p.m., Mr. John Everidge will open a discussion on "Clinical Aspects of Renal Ectopy and Fusion."

At a general meeting of the Tuberculosis Association at 26, Portland Place, London, W., on Nov. 17 at 3.45 p.m. there will be a discussion on "The Place of Work as a Therapeutic Measure in Tuberculosis—a Reassessment." The opening speakers will be: Drs. F. R. G. Heaf, P. W. Edwards, W. L. Yell, and J. H. Crawford.

Sir Joseph Barcroft, F.R.S., will lecture to the Food Education Society on "Food and Processing—the Nutritive Value of Processed Food," at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Monday, Nov. 20, at 2.30 p.m.

The Ministry of Health emphasizes that whole-time public health medical officers who are of military age must, before applying for any other post, first obtain the prior permission of the Minister. This requirement was set out in Circulars 2818 and 2881. If the permission is not obtained before making application the Minister will not approve their appointment. A number of candidates have recently found that they have been disappointed because the Minister has felt obliged to insist upon strict adherence to this requirement.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week notifications of infectious diseases rose by the following numbers of cases: measles 596, scarlet fever 220, diphtheria 58, whooping-cough 37, acute pneumonia 27.

In Durham there were 139 more cases of measles, in Lancashire 108, and in Staffordshire 75. The recent rise in the incidence of scarlet fever has been greater in Lancashire, where during the week reviewed 124 more cases than last week, and almost one-quarter of the total for the country, were notified. Diphtheria is particularly prevalent in the north, and the counties of Lancashire, Yorkshire, and Durham together had 42% of the total.

The notifications of dysentery fell by 32 to 358. The only new local outbreak of any size was in Oxfordshire, Bullingdon R.D. 20. The other large centres of infection were London 54, Lancashire 47, Glamorganshire 42, Suffolk 28, Hertfordshire 26, Essex 13, Norfolk 12.

In *Scotland* the incidence of diphtheria rose by 35, and of measles by 76; the cases of dysentery fell by 28. Measles notifications in Dundee were 40 more than last week. The number of cases of dysentery in Edinburgh and Glasgow were 17 and 51, compared with 32 and 64 of the preceding week. The 3 recent cases of typhoid in the town of Greenock are thought to be due to shellfish gathered from the Firth of Clyde.

In *Eire* notifications of scarlet fever rose by 17, and those of whooping-cough fell by 26.

In *Northern Ireland* scarlet fever rose from 55 to 105, almost half the notifications being recorded in Belfast C.B. The incidence of measles also increased in this city, from 56 to 91.

Week Ending October 21

The returns of infectious diseases during the week in England and Wales included: scarlet fever 2,176, whooping-cough 970, diphtheria 580, measles 3,779, acute pneumonia 640, cerebrospinal fever 36, dysentery 391, paratyphoid 6, typhoid 9, acute poliomyelitis 14.

No. 41

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct. 14.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1944 (a)	(b)	(c)	(d)	(e)	1943 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	43	2	20	3	3	37	1	17	2	2
Deaths		1	1				1	1		
Diphtheria	567	9	179	110	23	707	31	198	99	37
Deaths	6	—	—	1	—	7	—	2	2	1
Dysentery	358	54	106	—	—	253	46	62	—	1
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	2	—	—	5	—	—	—	—
Deaths		—					—			
Erysipelas			54	6	2			59	8	4
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				33					35	
Deaths	48	10	22	12	3	58	10	8	23	7
Measles*	3,088	28	249	57	91	675	49	55	18	—
Deaths	3	1	—	—	—	2	—	—	—	—
Ophthalmia neonatorum	64	2	18	—	1	87	5	19	2	—
Deaths										
Paratyphoid fever	7	—	—	—	—	3	—	4	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	655	29	3	1	6	569	33	6	—	5
Deaths (from influenza)	21	2	2	—	—	18	5	5	—	1
Pneumonia, primary			190	9				200	9	
Deaths		33		14	8		28		13	9
Polio-encephalitis, acute	—	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	24	1	6	5	1	19	3	—	—	—
Deaths		—					—			
Puerperal fever		3	17		—		4	14		—
Deaths										
Puerperal pyrexia‡	174	8	20	3	1	153	4	19	—	1
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	2,152	32	326	44	105	3,324	321	416	69	118
Deaths	—	—	—	—	—	2	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	9	1	4	15	9	5	—	—	9	3
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	897	53	70	12	11	1,482	121	157	13	15
Deaths	6	—	1	—	—	6	—	7	2	—
Deaths (0–1 year)	313	32	65	52	25	297	45	73	51	23
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,194	534	619	203	140	4,107	603	621	197	141
Annual death rate (per 1,000 persons living)			14·2	13·2	§			14·0	—	§
Live births	6,640	454	1,007	360	294	6,415	841	972	392	28
Annual rate per 1,000 persons living			20·5	23·4	§			19·8	25·6	§
Stillbirths	215	14	29			232	19	33		
Rate per 1,000 total births (including stillborn)			28					33		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireand are no longer available.

Letters, Notes, and Answers

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ANY QUESTIONS?

Diagnosing Mild Graves's Disease

Q.—*A young lady fainted five minutes after the insertion of a tabloid of homatropine and cocaine hydrochloride āā gr. 1/50 into each conjunctival sac. On recovering consciousness she had no perceptible radial pulse for a short time, but in half an hour recovered completely. She has slight exophthalmos, and the thyroid gland is moderately enlarged. Her pulse rate was about 86. She is 5 ft. 5 in. in height, and 5 st. 4 lb. in weight, having gained 4 lb. during one week of holiday. She is not unduly nervous, but becomes breathless on exertion. She has not been treated for Graves's disease, but appears to have presented the symptoms for several years. What further investigations are necessary in order to give a prognosis and indications for treatment? Does hyperthyroidism cause increased susceptibility to either of the drugs mentioned?*

A.—The diagnosis of mild Graves's disease is often very difficult to make with certainty, largely because we have no test for thyroid function. The signs and symptoms are those of increased oxygen consumption, which may occur in other disorders, of the associated psychological and autonomic imbalance, which is not necessarily associated with thyroid disease, and of the toxic action of excessive thyroid secretion on the heart, which occurs as a rule only in obvious cases. Exophthalmos, the cause of which is not known with certainty, is a notoriously unreliable sign. The further investigations suggested are the B.M.R., which is normally raised, and the blood cholesterol, which is normally lowered; but in all probability the most useful investigation is a period of rest in bed under the eye of a physician experienced in such cases and capable of weighing all the pros and cons. In the patient in question the pros are the exophthalmos, the thyroid enlargement, the low weight (slightly offset by the recent gain), and the breathlessness on exertion. An important con is the lack of apparent nervousness, but she may be very self-controlled. The single pulse reading does not help one way or the other. Thyrotoxic patients almost to a woman have hot feet and dislike hot weather. Hyperthyroidism does not cause an increased susceptibility to either homatropine or cocaine in doses so small as the ones this patient received. In all probability she had an ordinary "vaso-vagal attack." Patients with hyperthyroidism are often unduly excitable, and therefore liable to faint.

Diuretin for Fluid Retention

Q.—*A woman patient aged 48 years has hyperpiesia and fluid retention with excessive weight, probably indicating pituitary dysfunction. Great relief is obtained by the taking of diuretin. Is this drug best taken in small doses regularly, or in larger doses with an interval every few weeks or months? The patient's salt intake is kept at a minimum.*

A.—A certain degree of tolerance is acquired if the caffeine alkaloids are taken regularly, and this probably applies to diuretin, which is theobromine with sodium salicylate. If large doses are taken for some time the stomach is likely to be upset. For both these reasons it is preferable to give short courses of treatment with full doses at intervals rather than continuous treatment with small doses.

Use of Proflavine

Q.—*I understand that proflavine powder, though an admirable antiseptic, causes tissue damage when applied to a wound. For this reason it is generally diluted with sulphathiazole. In what strength can proflavine be safely used? Under what circumstances is it especially recommended?*

A.—Pure proflavine powder, as originally reported by G. A. G. Mitchell and G. A. H. Buttle (*Lancet*, 1942, **2**, 429), can safely be applied in an amount not usually exceeding 0.5 g. to chronic suppurating wounds. The tissues in fresh wounds are more easily damaged, and for application to these it should be diluted with a sulphonamide powder: the usual mixture is one part of proflavine and 99 parts of sulphathiazole. Several recent papers have reported favourably on the use of this powder for the prevention or treatment of sepsis in wounds of various kinds. J. S. Jeffrey and Scott Thomson (*B.M.J.*, July 1, 1944, p. 1) refer to its use as an alternative to penicillin for preparing an infected gunshot wound for suturing. P. B. Ascroft (*Lancet*, 1944, **1**, 594) applied it prophylactically to operation wounds. G. Y. Feggetter (ibid., p. 593) used it in war wounds both as a preventive of infection and for the treatment of established sepsis, and J. McIntosh and F. R. Selbie and their colleagues (ibid., p. 591) describe its use for a variety of purposes in civilian practice.

Barotrauma

Q.—*I have a medical friend who lost his hearing in a short journey by air. What are the dangers and the remedies therefor?*

A.—The information given is very meagre. Before giving a reliable answer it would be necessary to know far more of the clinical features; the time elapsed since the trip; how much of the hearing has been lost; the presence of pain on descent; the drum appearances; and the result of auto-inflation by Valsalva's method. However, the most likely cause is barotrauma, with or without a pre-existing cold in the head, leading to partial obstruction of the Eustachian tubes. Perforation of the drum with otitis media and sequelae is very rare and a theoretical danger. More likely is the production of a middle-ear effusion and deafness from a severe barotrauma. If the tubes have remained closed and the drum tension unrelieved for some time then there is a risk of permanent middle-ear damage and deafness. Careful examination of the drums (or drums) is necessary to determine what has happened. If there is no movement on auto-inflation then gently politzerize; if unsuccessful then Eustachian catheterization must be carried out by an expert. Treat a persistent cold with inhalations, etc. Should deafness persist after the tubes are patent then seek the advice of an E.N.T. surgeon with barotraumic experience. Early lip-reading is a wonderful help, but this is taking the gloomiest view of the condition, particularly as the trip is described as short, and so the barotrauma may not have been severe.

"Red Vision" after Cataract Operation

Q.—*A lady now aged 70 had an operation for cataract some four or five years ago. She has been persistently, almost continuously troubled by "red vision." Everything is coloured red, more or less. Nothing has done any good. Can any suggestions be made as to cause, cure, or alleviation?*

A.—Such disturbance of vision is uncommon, and though there are several explanations for it none is satisfactory. Apart from the unlikely possibility in such a case of an intra-ocular haemorrhage, it seems reasonable to suppose that the lens of the patient offered an unusual obstruction to the red end of the spectrum. When the lens was removed, that part of the spectrum was able to reach the retina in an unaccustomed degree, giving a warmer hue to objects. It is also a fact that, owing to the chromatic aberration of the eye, overcorrection with a convex lens tends to favour the red as against the green end of the spectrum. Alleviation may be obtained by checking the correcting lens, failing which a tint in the lens reducing the brightness of red colours might help. As a rule, however, the red coloration is not seen on all occasions so that a tinted glass should be used with discretion.

Hormone Treatment of Enlarged Prostate

Q.—*A man aged 54 suffered from frequency of micturition, especially at night. He was seen by a surgeon who found a slight prostatic enlargement, but not enough to justify operation. He was advised to try stilboestrol, and after taking 1 mg. three times a day for three weeks, he noticed a swelling of the breasts with some scabbiness (? dried discharge) of the nipples. Although it is now nearly two months since he stopped taking the stilboestrol, the breasts are still prominent and tender. Can anything be done to relieve the condition? There has been no improvement in the frequency.*

A.—This condition of the breasts sometimes occurs in men who take oestrogens, but it is unusual for the condition to persist two months after the cessation of such therapy. Testosterone should be tried, and may ameliorate the condition. It can be given in the form of injections, 25 mg. three times a week, or methyl testosterone, 5 mg. t.d.s., allowed to dissolve under the tongue. If the condition does not improve within two weeks, this therapy is unlikely to be helpful. As to the original condition of urinary symptoms due to an enlarged prostate, favourable reports on the effect of stilboestrol have been recorded, but on the whole the results are disappointing, in contrast to the favourable results (usually temporary) with stilboestrol in carcinoma of the prostate. A few years ago testosterone or methyl testosterone were strongly advocated for benign enlargement of the prostate, but a controlled series of cases undertaken by the Medical Research Council did not confirm these claims. Nevertheless, in practice several clinicians still prescribe testosterone, and claim objective improvement. If enlargement of the prostate is associated with the male climacteric and gradual decrease of testicular function, testosterone would be logical therapy.

Satisfactory Contraception

Q.—*What is considered to be the most satisfactory contraceptive for a woman, married, in the early thirties, who has had no children? What are the disadvantages or objections to intercourse during menstruation, apart from the aesthetic aspect, and risk of infection to the woman?*

A.—The choice of contraceptive depends to some extent on the woman concerned, her intelligence and outlook on these matters, the shape of the vagina, direction of the cervix, etc. A Dutch vaginal pessary or a cervical cap would probably be the most satisfactory appliance, but should be used in conjunction with a chemical contraceptive—e.g., phenyl mercuric acetate—incorporated in a jelly or soluble pessary, if a high degree of safety is to be achieved.

Objections to coitus during menstruation are to some extent based on old religious views and superstitions to the effect that at such time a woman is "unclean," and that the menstrual discharge contains noxious factors. Such ideas are deep-rooted and even to-day probably play an important, even though subconscious, part in the increased modesty of women during menstruation. In any case coitus during menstruation would sound a messy procedure and, on that account, repugnant to most people. Yet coitus is probably more frequently practised during menstruation than is generally realized. Indeed, in some individuals—and it applies to either partner—sexual desire appears to be increased at that time. When both husband and wife are healthy, there can be little objection on purely medical grounds. The alleged risks of vaginal tears and menorrhagia are largely theoretical, although tenderness of the vagina which some women experience during menstruation would be a contraindication. If active or latent infection is present in either male or female genital tract then the position is altered. The resistance of the female to infection is lowered during menstruation. Moreover, if a woman has chronic and dormant infection in the cervix or tubes then there would be an increased chance of an exacerbation and extension of the trouble. As the questioner points out, the real objection to coitus during menstruation is the obvious aesthetic one, and it operates particularly when the flow is at its height. When, however, the discharge is scanty or intermittent, and the couple are mutually desirous of intercourse, there does not appear to be any valid reason for advising against it.

Carbon Monoxide Poisoning

Q.—*What is the treatment of chronic carbon monoxide poisoning? A patient of mine, a blacksmith, has symptoms corresponding to those described by H. S. Stannus in the* Journal *of July 22, which, he says, are also found in chronic carbon monoxide poisoning. As my patient is a blacksmith, chronic carbon monoxide poisoning is the more probable diagnosis. Blacksmiths are usually good beer drinkers. My patient is not. Has the taking of alcohol anything to do with preventing chronic carbon monoxide poisoning in these people?*

A.—Carbon monoxide is not a cumulative poison. There is therefore no such condition as the expression "chronic carbon monoxide" would imply. Regulation of working hours should be such that a man lives in an atmosphere not contaminated with carbon monoxide for at least twice as long, in the 24 hours, as he does in one that is contaminated. In pure air and with a normal volume of breathing, small amounts of carbon monoxide are readily ventilated out of the blood. Repeated exposures, as in the case of the blacksmith, may temporarily, but only temporarily, affect health; more often a compensatory polycythaemia develops to compensate for the lack of oxygen. Symptoms such as loss of appetite, digestive disturbances, headaches, diminished vigour, poor colour, and apathy disappear upon removal of the patient from the exposure. Stannus, in his paper in the *Journal* on July 29 (p. 144), suggests "that riboflavin deficiency interferes with the normal functioning of the capillary with the production of a tissue anoxia," and draws a parallel between such a condition and that which arises if the tissues are fed with CO-haemoglobin. He points out that carbon monoxide is believed to inactivate cytochrome oxidase and thereby inhibit oxygen consumption by preventing electron transfer by uniting with the iron in the ferrous form. There is no association between riboflavin deficiency and carbon monoxide poisoning. Alcohol has no effect in preventing "chronic" carbon monoxide poisoning.

Prevention of Mould

Q.—*How are the following prepared to prevent mould formation: (a) 1/2% solution ephedrine for nasal spraying, and (b) novocain, acid. boric., liq. adrenalin. 1/1,000 eye drops?*

A.—The method of preparing solutions, etc., will not alone prevent the formation of moulds in susceptible preparations, but the use of sterile materials and the employment of aseptic conditions when making will help to retard it. It is now quite common for fungicides to be incorporated in addition to the therapeutic ingredients, and a number of proprietary articles, mostly esters of parahydroxybenzoic acid, are on the market. They have the advantages of being stable, non-irritant, and non-toxic, and are effective in very low concentrations. Parachlormetacresol (chlorocresol of the *B.P. Third Addendum*) and phenylmercuric nitrate also have these virtues and are in frequent use. In the strength required to be bactericidal (0.25%) parachlormetacresol sometimes causes irritation in the eye, but it is effective as a fungicide in a concentration as low as 1 in 10,000 and in this concentration is non-irritant. A 1 in 100,000 of phenylmercuric nitrate is an effective fungicide and may be used for most preparations, including the two in question, but it is not soluble in oil whereas parachlormetacresol is, and may therefore be used for the oily as well as the aqueous ephedrine spray.

Mortality from Heart Diseases

Q.—*What are the figures for the mortality from (a) angina pectoris, (b) coronary artery thrombosis, (c) heart failure due to high blood pressure, for (1) the first year for which figures are available, and (2) the most recent year for which records are available?*

A.—In 1940 the deaths of 1,671 males and 706 females were attributed to angina pectoris, without mention of coronary disease; in 1939 the corresponding figures were 1,677 and 684. Deaths from coronary artery thrombosis are included with diseases of the coronary arteries; in 1939 and 1940 10,242 and 10,648 males and 5,241 and 5,605 females respectively were said to die from such disease. Before this the deaths from both these conditions were included with diseases of the coronary arteries. It is not possible to reconstruct the two subheadings for earlier years, but for the combined group there has been a progressive increase in mortality in the past twenty years. During 1911–21 the crude death rate was fairly constant around 36 per million for males and 16 for females; the rate then began to rise and was 216 for males and 87 for females in 1931, and, in 1940, 675 for males and 292 for females.

Deaths from heart failure due to high blood pressure were not tabulated separately until 1939; in 1940 1,072 males and 945 females were certified as having died from this cause. The reconstruction of this cause for the preceding ten years was made in the *Statistical Review* of 1940, which showed a steady rise in mortality from 7 per million in 1931 to 59 in 1940 for males, and from 8 to 44 for females. In the years preceding 1939 these deaths had been included in the group of abnormalities of blood pressure, which were tabulated for the first time in 1924, when 21 males and 26 female deaths were classified as due to abnormality of blood pressure.

Piercing the Ears

Q.—*It has been the custom for ladies to resort to jewellers for the piercing of the lobule of the ear prior to wearing ear-rings. Jewellers in most cases have ceased to carry out this little operation, and consequently application is made to the doctor. What is the technique which should be followed, and what sort of a ring should be inserted in the pierced ear while healing is taking place?*

A.—Perforation of the lobule of the ear should be done with careful aseptic precautions. There is hardly need for local anaesthesia since the lobule is very insensitive to pain. The puncture may be made by a sterilized, large, round-bodied needle, or perhaps better still by a small trocar. A small piece of sterilized cork may be placed against the opposite side of the lobule to give purchase while the puncture is made. Jewellers usually immediately insert a small split metal ring (which should also be sterilized) which can be left in for several days and moved round from time to time until the ear-ring itself may be inserted.

B. newport Enteritis

Q.—*Can you suggest any cure for B. newport enteritis of several years' standing? I have tried (a) stovarsol, and (b) sulphaguanidine with no effect. The condition has been similar for 10 years. The patient is a lady aged 75.*

A.—An attack of bacterial food-poisoning due to a Salmonella organism like the Newport bacillus is usually characterized by severe vomiting and diarrhoea of 1 to 2 days' duration. The organism producing the intestinal upset by reason of its "enterotoxin" may remain in the gut for some days or weeks after the acute attack, but persistent carriers of the food-poisoning group of organisms are very rare. Sometimes, however, the Salmonella organism, instead of causing an intense local irritation in the bowel, gets into the body tissues and produces a continual fever with little intestinal upset. In such a case, or even after a typical attack of food-poisoning, the organism may gain access to the gall-bladder and remain there, particularly if the patient is suffering from gall-stones. Something of the kind may have happened with this patient, who with a 10-years history must be regarded as a chronic Salmonella carrier. Recurrent attacks of diarrhoea and intestinal catarrh are a feature in some chronic typhoid carriers—a kind of auto-intoxication—and this may be the explanation of the enteritis in this patient. If so, the only hope of permanent cure is to remove the focus of infection, most likely the gall-bladder; but cholecystectomy in a woman of 75 is not lightly to be recommended or undertaken. Unfortunately the intestinal sulphonamides—sulphaguanidine and succinyl sulpha-

thiazole—are not effective against the Salmonella family, and recourse must be had to palliative treatment—e.g., a chalk or bismuth mixture. Of course, the enteritis may be due to some other cause than the Newport bacillus, and if the patient's health is deteriorating a thorough overhaul in hospital may be indicated.

Chronic Diarrhoea in Childhood

Q.—*What is the treatment of a child of 2 who is suffering from a mild chronic diarrhoea with much mucus with the stool? The pathological report on the faeces shows an almost pure growth of the haemolytic streptococcus. In other respects the child seems perfectly well. There seems very little in the literature on this subject.*

A.—Mild chronic diarrhoea with much mucus in the stool is relatively common in children of from 1 to 3 years, an observation all too familiar to nursery-school nurses. The almost pure growth of a haemolytic streptococcus is probably the result of the diarrhoea and not the cause. The condition may be due to an unsuitable diet or a particular difficulty with the digestion of fat, vegetable matter, or starch; to an infection with one of the dysentery bacilli or the tubercle bacillus; or to infestation with a parasite such as *Giardia intestinalis* (lamblia). Three stools at least should be examined microscopically for ova, parasites, or cysts, and for food residues. Unfortunately, in the majority of cases no cause will be found, and then if the child is well and is gaining weight properly, no treatment is needed. In any case treatment by low-residue diet, ol. ric. in minim doses, or pulv. ipecac. co. is disappointing. A good account of chronic diarrhoea in childhood has yet to be written.

Pregnancy and Phthisis

Q.—*We know that pregnancy increases resistance to phthisis, but parturition diminishes that resistance. Would you tell me whether anyone has tried to treat tuberculosis with (among other things) extracts of corpus luteum with calcium and vitamin D intramuscularly? This should be possible in females at least.*

A.—The supposed beneficial effect of pregnancy on pulmonary tuberculosis was noted by Hippocrates, but, in spite of a strong clinical impression, there is little if any scientific evidence that pregnancy has any effect on the course of the disease. Many authorities think that improvement during pregnancy and relapse during the puerperium may be explained by the mechanical effect of the abdominal tumour, which raises the diaphragm and thus restricts the movements of the lungs. It has been suggested that a pneumoperitoneum should be induced after delivery in tuberculous women to compensate for the shrinkage of the uterus. Nevertheless, there is some experimental work which suggests that the gonadotropic hormone found in the urine of pregnant women exerts a favourable influence on the progress of experimental tuberculosis in animals (Steinbach, M. M., and Klein, S. J., *J. exp. Med.*, 1937, **65**, 205). The questioner is referred to an article by W. D. W. Brooks (*J. roy. Inst. Hyg. publ. Hlth.*, 1940, **3**, 67) for a recent summary of the whole position

Mixing T.A.B. and Tetanus Toxoid

Q.—*Is there any contraindication to mixing the annual booster dose of 0.5 c.cm. of T.A.B. vaccine and 1 c.cm. of tetanus toxoid? The preparations we use (R.A.S.C.) are mixed typhoid and paratyphoid vaccine by the Army Medical College and Wellcome tetanus toxoid—i.e., into a 10-c.cm. syringe take 6 c.cm. of T.T. and 3 c.cm. of T.A.B. and give 1.5 c.cm. of the mixture to each soldier.*

A.—Probably no lessening of immunizing power would result from mixing, but this is an assumption; and before to-day assumptions have led to disconcerting results when various antigens containing different antiseptics have been mixed. I should therefore not adopt this practice as a routine or convenience until someone has fully tested the procedure in controlled experiment. I should mix these prophylactics in an emergency if limitations of time, space, or syringes made that advisable. I should then be careful to mix thoroughly by movement of the piston and should rigorously discard any material not made up at one sitting.

INCOME TAX

Re-starting in Private Practice: Purchase of Car

C. B. is at present working full time in the E.M.S., using his car for his honorary posts and receiving no income-tax allowance for travelling expenses. He will shortly start a consulting practice—from scratch, as his pre-war practice has been dispersed. Will it be to his advantage to put off buying a new car until after he recommences private practice?

*** In the circumstances we are of opinion that C. B. will be unable to resist the contention that the cost of purchasing the new car will be capital outlay and not deductible as an expense of carrying on the new practice. He will, however, be entitled to claim the usual depreciation allowance, calculated on a percentage of the capital value as at the commencement of the new practice. The only difference, therefore, which an immediate purchase of new car would create would be that he would lose the depreciation allowance on any reduction in value of the car due to the period from the date of purchase to the date of restarting private work. We gather that this would be negligible.

LETTERS, NOTES, ETC.

Fracture-dislocation of Talus

Col. R. JACKSON, M.B., C.M. (St. Helen's, Lancashire) writes: On Sept. 16 you published an article by Squad. Ldr. Theodore James, describing a fracture-dislocation of the astragalus, with x-ray illustrations. Two prints of an almost identical condition, which were taken by me in 1899, were published, with an account of the case, in the *Quarterly Medical Journal* (Yorkshire) in February, 1900. This was a very interesting case, as the man refused any treatment for over twelve months, and in the end made a perfect recovery and went back to his work down the mine.

Simple Splint for Fracture of the Clavicle

Mr. FRANK COLEMAN (London, W.1) writes: I was interested in Mr. Whitchurch Howell's "splint" (*B.M.J.*, Oct. 7, 1944). Mr. McAdam Eccles, when in charge of an aid post at which I was a medical officer, showed us how to use two rubber rings such as those used in deck tennis, and it appeared to be a highly satisfactory way of dealing with this common form of fracture. Mr. Howell does not state the material he had his rings made of, but as rubber is scarce it might be that "light plastic" could be used in the future.

Rhubarb

Mr. D. C. L. FITZWILLIAMS, F.R.C.S. (London, W.1) writes: Under the heading "Rhubarb and Breast Milk" (Oct. 14, p. 518) the answer stated, "the cathartic principles . . . are present . . . only in the fruit"—by this I suppose the stalk is meant. The answer then proceeds to say that the "root . . . is used as a source." Let him try next season to put a little of the young yellow leaf at the top of the young stalk in a salad; it is excellent, but be very careful that it is only a little, as he will find that the active principles are not at all confined to what he calls the "fruit."

*** During the last war severe poisoning from oxalic acid occurred in persons eating rhubarb leaves.—ED., *B.M.J.*

Syringe for Self-administration of Insulin

Dr. F. M. HILLIARD, F.R.C.P.I., writes from Blackpool: I enclose a cutting from the *B.M.J.* of Oct. 23, 1925, p. 632, in which you published a modification of the Record syringe which I devised for the automatic control of insulin dosage. It was made by Messrs. Allen and Hanburys, and had an advantage over that described by Dr. C. T. Andrews (Oct. 21, 1944, p. 534) in that the dose could be more accurately adjusted by means of two locking nuts on a threaded piston shaft. Since then I have used it frequently for diabetic patients with failing eyesight. As a result of my original notice, I received many letters of appreciation from patients who found the idea helpful. Nowadays the hospital engineer can thread the shaft and fit two nuts on any standard Record syringe.

Tetanus

Dr. JOHN FODDEN (Huddersfield) writes: It has been my experience in a short postgraduate career to witness four cases of severe clinical tetanus. These cases were supported by bacteriology. May I quote two, as they were all very similar. The first was that of a young cotton-worker in a crowded industrial district, who pierced her thumb with a large clean needle while at work in a factory. After two days slight sepsis developed over the small puncture wound. Six days later she developed all the signs and symptoms of acute tetanus toxaemia. To this she succumbed. The second case was that of an adult male, who was at work in an iron foundry. A large piece of pig-iron fell *near* his foot. A protruding jagged cone of metal pierced his boot and entered his great toe. The depth of penetration was very slight, though a small haematoma was obvious some time later. The man was not away from work. There was no crushing of the toe whatsoever. The wound did not heal well, and the surrounding area of skin was somewhat discoloured. Eleven days later the clinical onset of tetanus made its appearance. After a severe fight for existence this man lived. Isolated bacteriologically in all the cases were pathogenic aerobes, as well as the tetanus bacillus. In none of these cases was there any trauma worth mentioning, and certainly no loss of blood supply. Thus, with reference to your correspondent's reply (Sept. 16, p. 391) regarding tetanus prophylaxis, I feel that sufficient emphasis was not placed upon *small* wounds of this type—i.e., small puncture wounds. Further, surely more importance must be attached to these wounds occurring in an agricultural area than to those which happened in an area peculiar to industry. I am afraid that I now look upon the much-perpetuated facts of gross muscle damage, trauma, and loss of blood supply as only part of the life-story of tetanus infection and its symptoms.